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Tubes, tenure and turbulence

the effects of Drought related migration on tenure issues and resource management in northern Senegal

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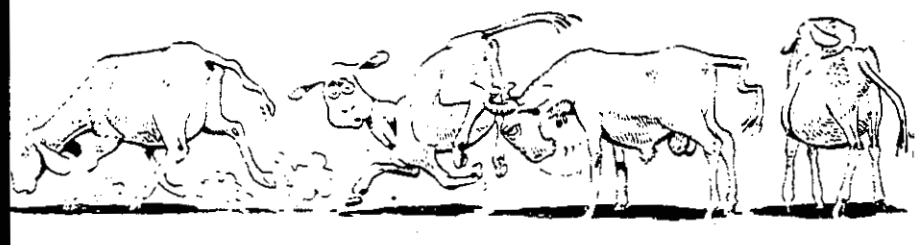
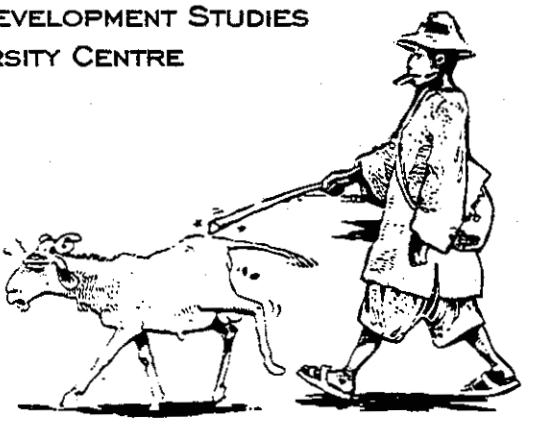
Tubes, Tenure and Turbulence:

The effects of drought related migration on tenure systems and resource management in Northern Senegal

Ph.D. Dissertation

Kristine Juul
International Development Studies
Roskilde University Centre
March 1999.





Acknowledgments.

This dissertation started life already in 1988 when I made my first visits to the Ferlo and was introduced to the rich life of the region by my fellow sociologist Oussouby Touré and our assistants Mamadou Ka and Moustapha Dia. Since then I have benefitted from their immense knowledge of the region, of pastoral management and of tenure issues.

Mamadou Ka made the whole journey with me and assisted me as interpreter, assistent, co-driver and friend throughout the 7 years over which fieldwork was scattered. I owe much of my rich fieldwork experience to him. Apart from being an entertaining, knowledgeable and analytical companion, he patiently tried to teach me some basic Fulani social skills, some tact and decent behavior. When this proved to be in vain he was ready to make use of his talents for entertainment, transforming our passage in the different Fulani camps from long and irksome interviews with overburdened herders into an agreeable social event. Making the outmost use of the institutionalised 'mocking relation' between his patronym 'KA' and the patronym 'BA' held by most of our respondents, he was responsible for the pleasant and lively atmosphere which was created and the close relations that were knit to our main respondents in the course of the years. This gave us the tremendous privilege of being well received by our respondents who generously granted us time for endless questioning and who carefully explained their stories. Without this confidence and openness it would have been impossible to get to gribs with the many intricate and delicate elements which together constitute the political and social life of post-drought Ferlo.

Although it was all too apparent that nothing was to be gained from spending precious spare time on endless interrogation into their private affairs, we were met with immense generosity and hospitality in all the families and encampments visited. Indeed I may rightly be criticised for underscoring this dimension in my general portrayal of Fulani pastoralists as profit-maximizing and economically rational entrepreneurs, incessantly concerned with the calculation of opportunity costs. This disinterestedness goes for the totality of herders and farmers included in the study. It is, however, particularly true for the families of Yerim Sow, Bathil Ba, Terry Ba, Assane Ndiaye and Abdoul Samba Dieri Ba who were always delightful to visit and whose hospitality we expoited ruthlessly.

I am grateful for the ample assistance and the accommodating attitude which representatives of the Senegalese authorities at all levels have shown towards me and my work. Direction de l'Elevage and Institut Sénégalais de Recherche Agricole in Dakar and Centre de Recherche Zootechnique in Dahra have provided valuable information and interesting discussions. Institut des Sciences de l'Environnement, Université Cheick Anta Diop, Dakar ensured institutional backing and its Director, M. Tidjane BA who took the time to read and comment some of my earliest drafts.

To discuss with Christian Santoir from ORSTOM was an extremely instructive and valuable experience, which convinced me of the need to substantiate my findings quantitatively. Inspiring discussions were held with Brigitte Thébaud and Marlene Richter, hence associated with the GTZ project in Widou Thingoly. Finally my friends and former colleagues from the Centre de Suivi Ecologique have given me invaluable support, suggestions and advise throughout the years, for which I cannot sufficiently express my gratitude.

Back home in Denmark, Henrik Secher Marcussen is responsible for awakening my interest in West African pastoralism and natural resource management by sending me off to Mauritania on an internship and by encouraging me to continue my 'pastoral career' in Senegal. Throughout the years he has provoked and encouraged me, but has also displayed loyalty and tremendous patience with me in those moments where it was required.

My colleagues and fellow students at International Development Studies at RUC have contributed with constructive discussions and literature suggestion. Notably the 'circle' around institutional aspects of resources management: Tove Degnbol, Christian Lund, Tine Bensaoula, Hans Otto Sano, Peter Oksen, Gun Mickels, Runa Midtvåge and Henrik Nielsen have, apart from providing a pleasant and constructive working atmosphere, invested precious time and energy in reading messy drafts. Particularly Christian Lund shared his ideas and suggested crucial improvements, that have significantly contributed to raise the standard of the dissertation.

I am very grateful to Roger Leys who patiently read and commented my 'oeuvre' and made a tremendous effort to reduce long sentences and make the work more readable. Finally I am most obliged to my present colleagues at the Geography department at RUC who have refrained from pressing me but instead patientiently have awaited for me to finish and to Ingrid Jensen, who is considerably improve some of the maps.

I also wish to express my gratitude to the Danish Council for Development Research who have been extremely generous and forbearing.

None of this work could have been done without the incessant support of my family network. Lotte and Asger have in particularly busy times almost became step-parents for our children, and have even declared that they enjoyed it. Asger furthermore voluntarily undertook the tedious work of reading the proofs. My parents and my sister have also taken their share of having a 'Ph.d'ing' family member, and have backed and encouraged me in numerous ways. Finally, Henrik, Kasper and Peter have endured me when I was absent-minded, and have even managed to remain understanding and supportive. Although it has been invaluable to discuss pressing issues such as manuring and taxing rates with Henrik over the dinner table it has first of all been the source of great pleasure end enjoyment when he and the boys have insisted on doing otherwise.

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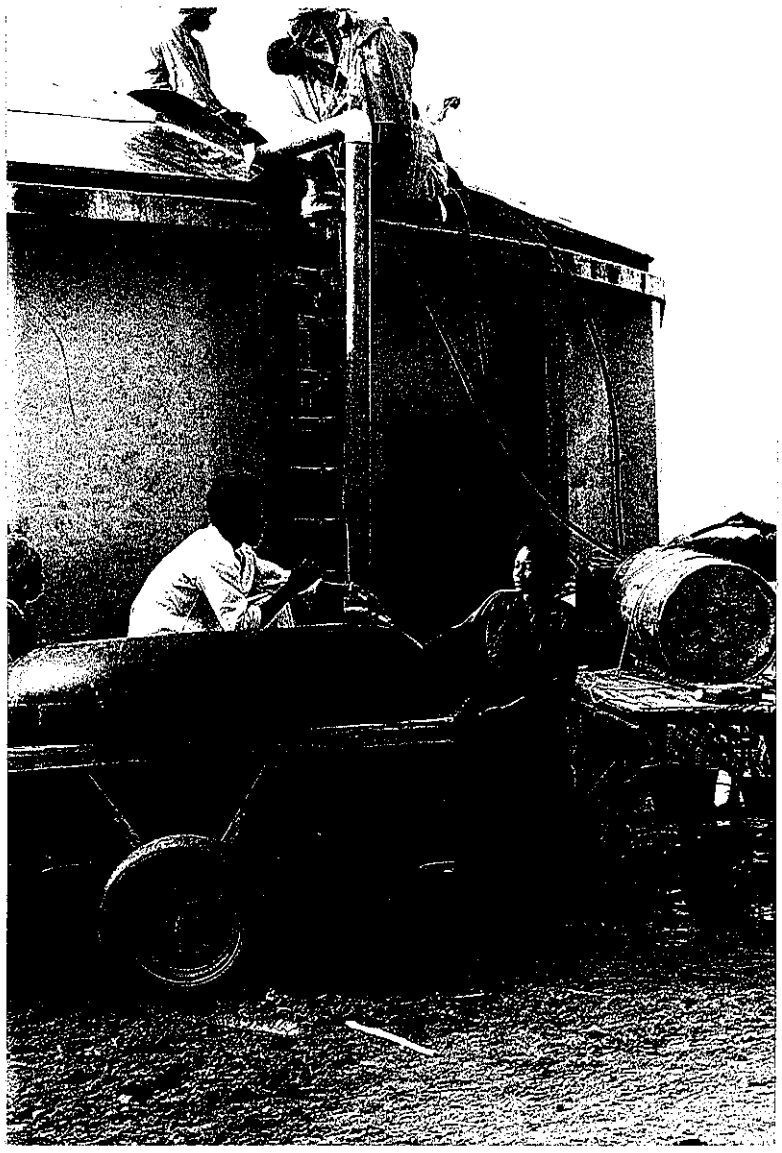
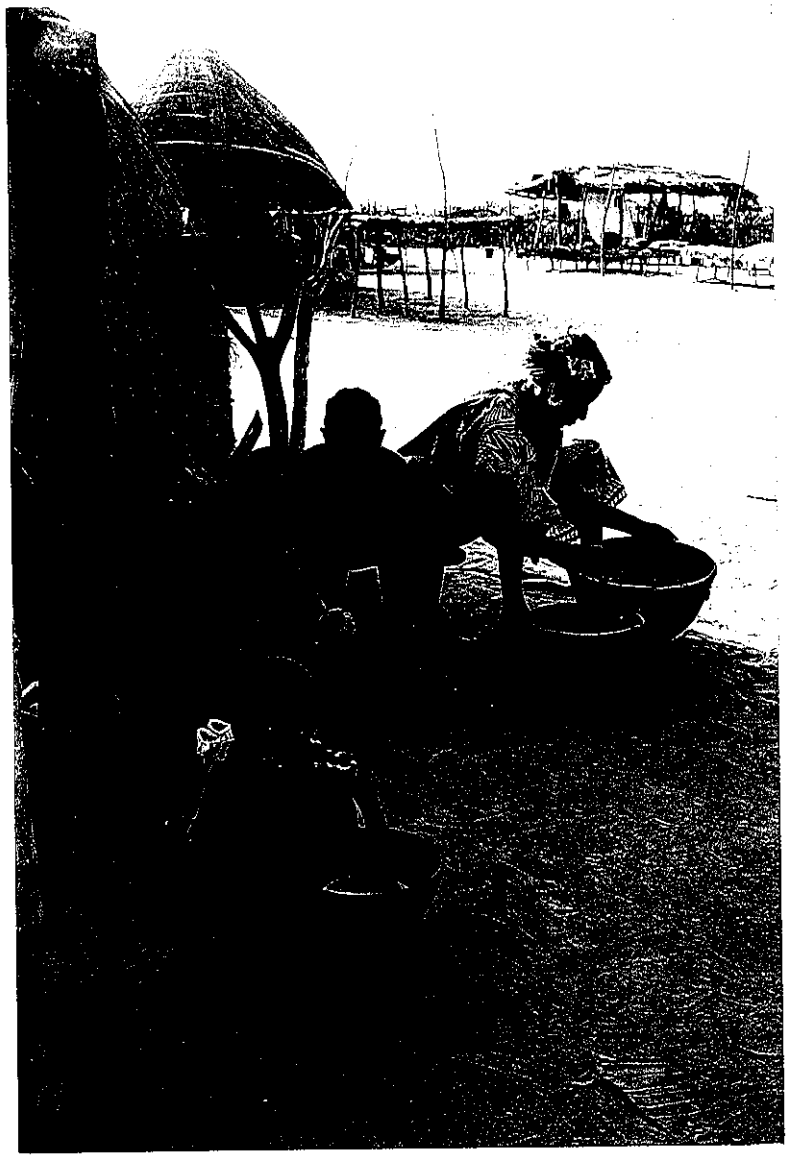
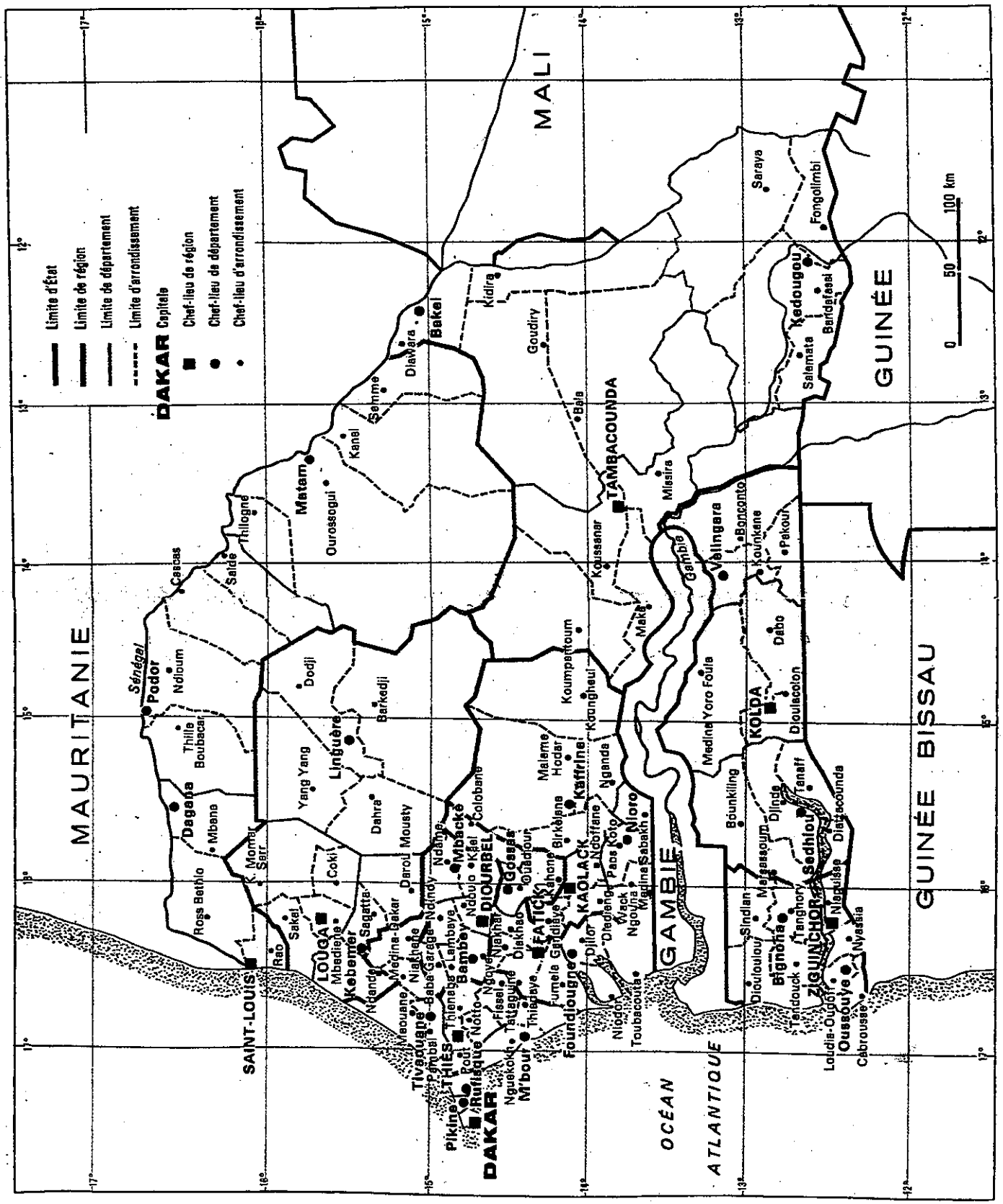




Map 1.
Senegal by administrative boundaries


Limite d'Etat
Limite de région
Limite de département
Limite d'arrondissement
DAKAR Capitale
Chef-lieu de région
Chef-lieu de département
Chef-lieu d'arrondissement
0 50 100 km
MAURITANIE
MALI
GUINÉE
GUINÉE BISSAU
GAMBIE
OCÉAN ATLANTIQUE
SAINT-LOUIS
DAKAR
THIÈS
LOUGA
DIOURBEL
FATICK
KAOLACK
TAMBACOUNDA
KOLDA
ZIGUINCHOR
Podor
Matam
Bakel
Kidira
Goudiry
Kanel
Ourossogui
Dagana
Richard Toll
Louga
Linguère
Dodji
Barkedji
Mbacké
Gossas
Nioro
Kaffrine
Koumpentoum
Kaolack
Foundiougne
Kaffrine
Kolda
Vélingara
Bounkiling
Diouloulou
Bignona
Oussouye
Sédhiou
Goudomp
Kédougou
Salémata
Saraya
Fongolimbi
Kaolack
Kaffrine
Fatick
Diourbel
Thiès
Mbour
Tivaouane
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Thilogne
Matam
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Nioro
Pane Koto
Wack Ngouna
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Kahone
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Lambaye
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Baba Garage
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Darou Mousty
Dahra
Linguère
Yang Yang
Barkedji
Dodji
Thille Boubacar
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Tivaouane
Mboro
Thiaroye
Yeumbeul
Keur Massar
Malika
Sangalkam
Tassette
Ngor
Yoff
Ouakam
Cambérène
Parcelles Assainies
Grand Yoff
Hann
Médina
Plateau
Gorée
Almadies
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Yoff
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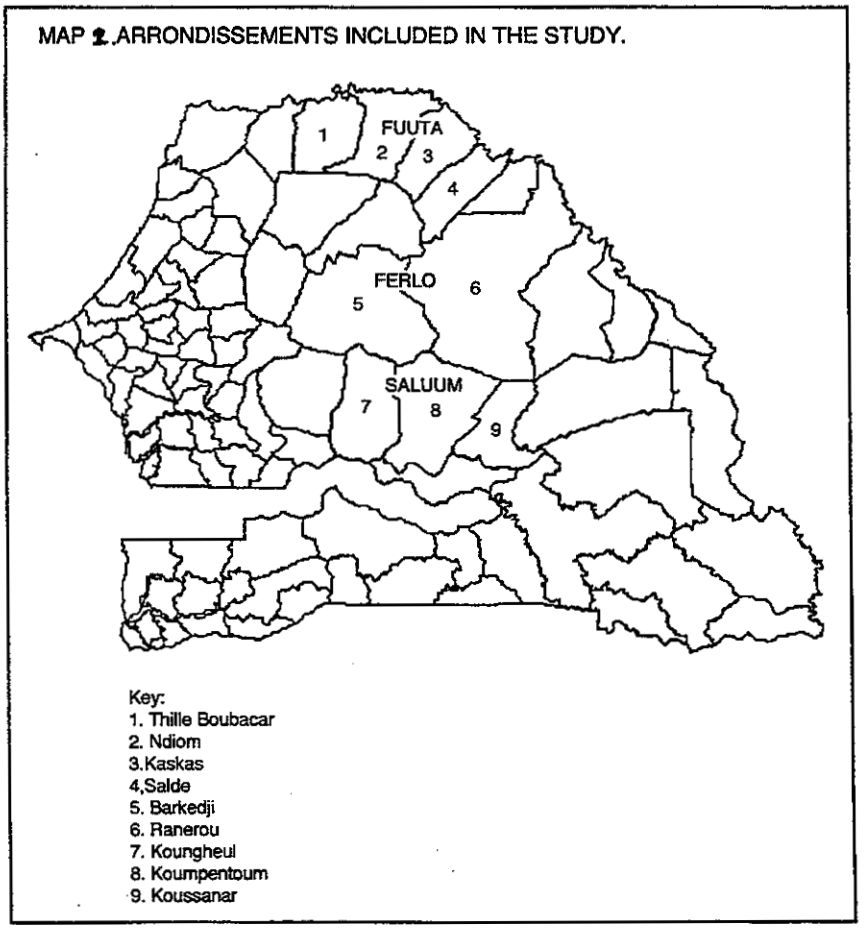
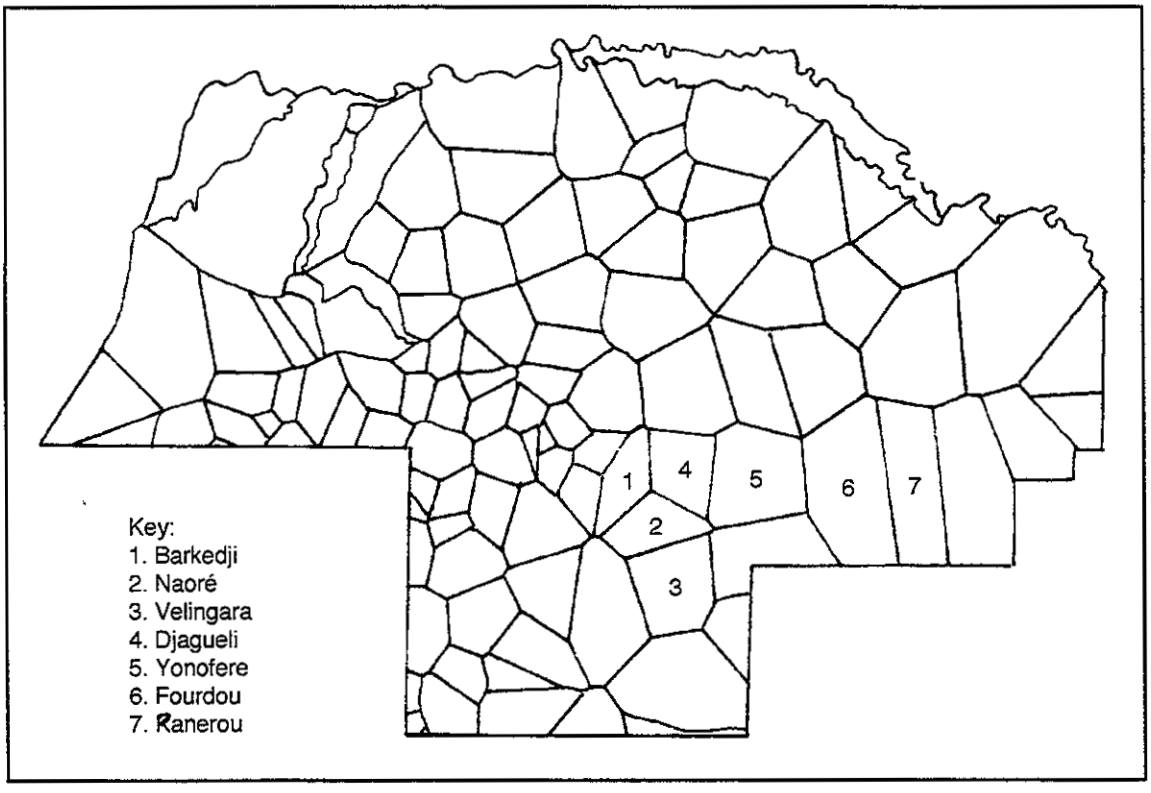
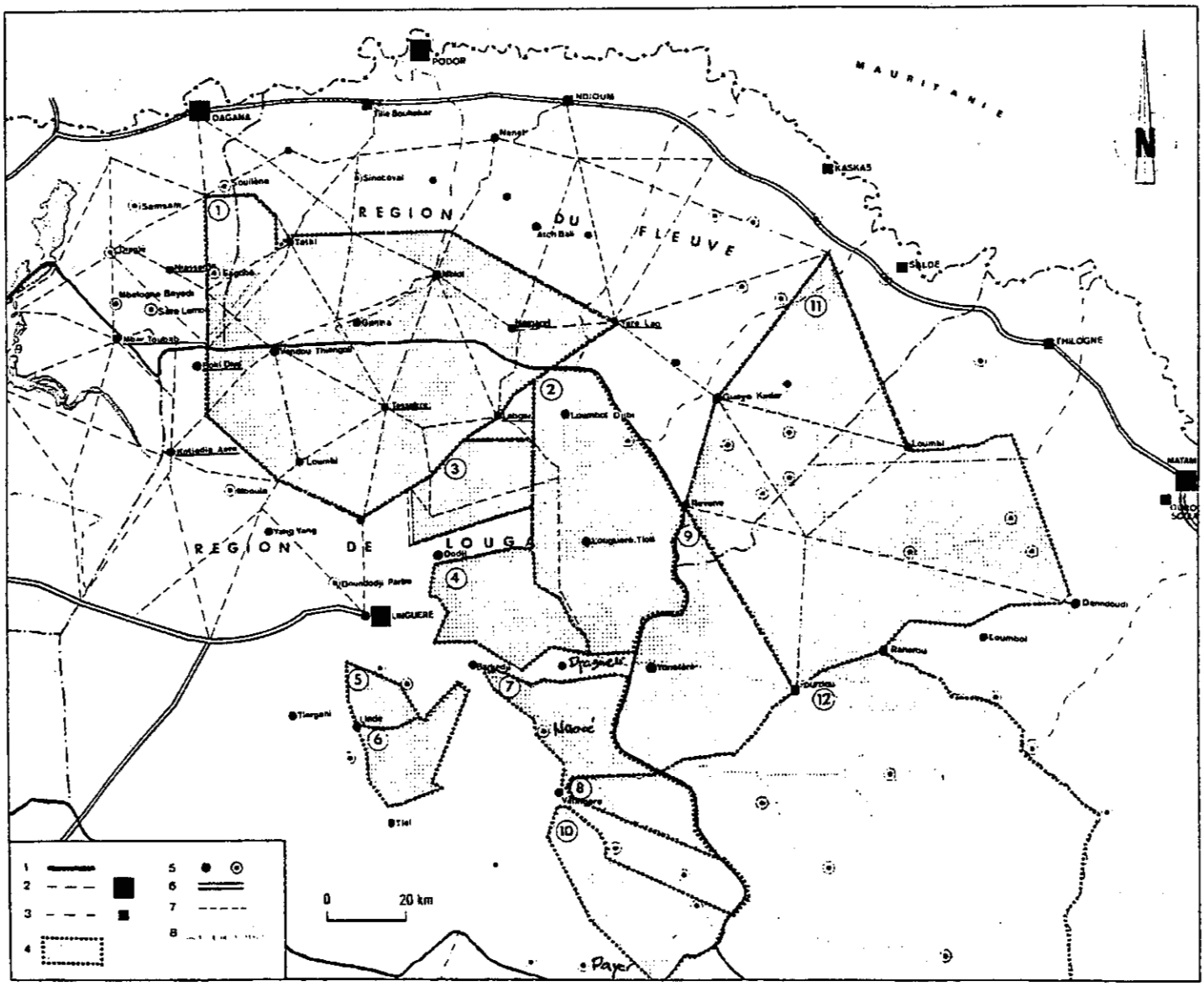


Map 3.
Principal boreholes included in the study by area of coverage (Thiessen polygones).



Source: CSE, Dakar.

Map 4.
Boreholes and forest reserves



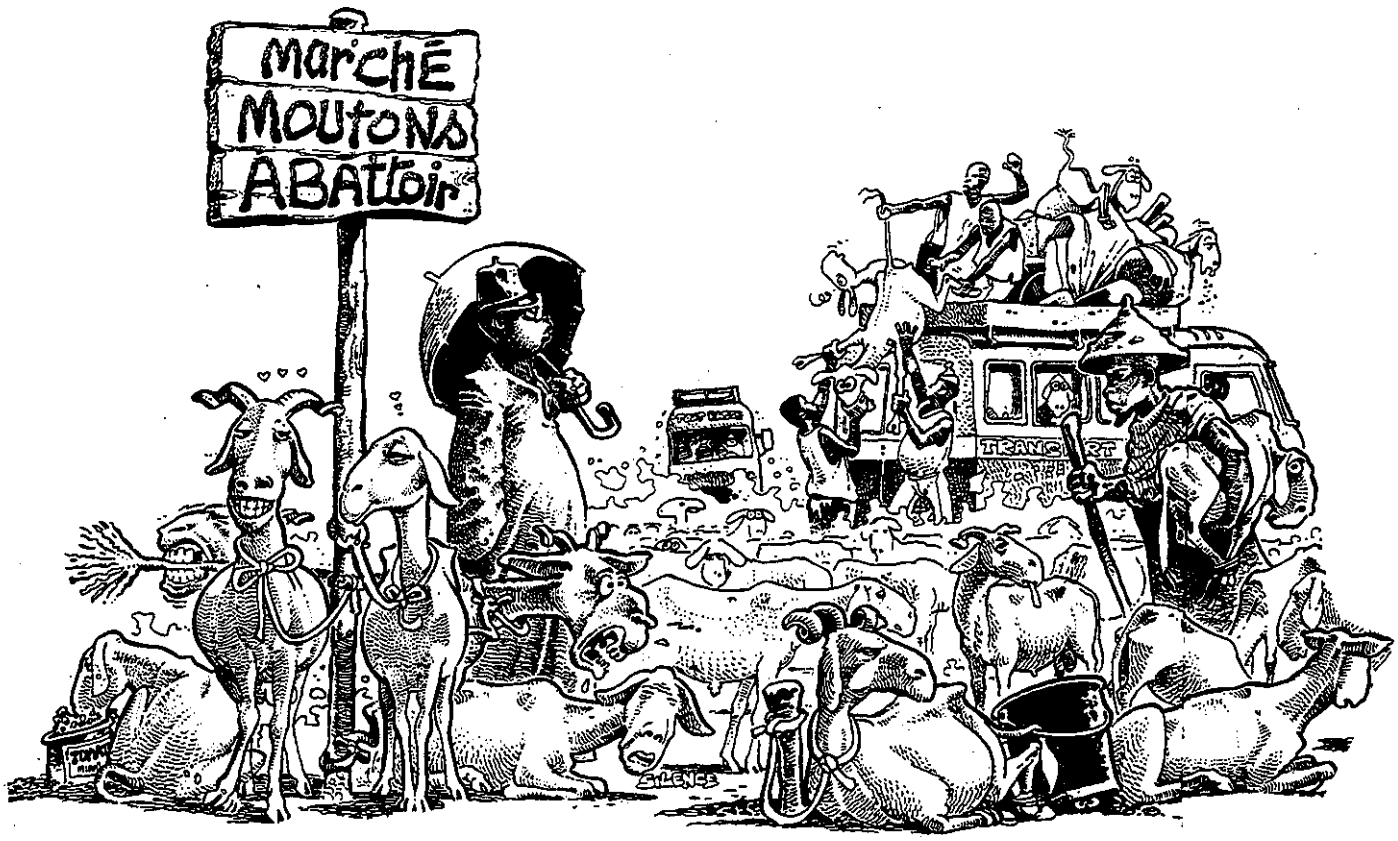
Superficie des principales réserves indiquées

1	Réserve Sylvo-Pastorale des 6 forages et Sagobé	263 400 ha.
2	Réserve Sylvo-Pastorale de Louguère-Tioli	198 000 ha.
3	Réserve Sylvo-Pastorale de Khadar	61 000 ha.
4	Réserve Sylvo-Pastorale de Barkedji-Dodji	65 000 ha.
5	Réserve Sylvo-Pastorale de Khoghé	18 000 ha.
6	Réserve Sylvo-Pastorale de Lindé Sud	30 000 ha.
7	Réserve Sylvo-Pastorale de Velingara	50 800 ha.
8	Réserve Sylvo-Pastorale de Bem-Bem	37 700 ha.
9	Réserve Sylvo-Pastorale de Yonoféré	49 400 ha.
10	Réserve Sylvo-Pastorale de Sab-Sabré	65 900 ha.
11	Réserve de faune du Ferlo-Nord	332 000 ha.
12	Réserve de faune du Ferlo-Sud	663 700 ha.

Sources : carte générale de l'IGN, 1/1 000 000
Carte des Forages du Sénégal, mise à jour août 1982,
1/500 000, Ministère de l'Hydraulique du Sénégal.

Chapter 1.

Introduction.



Chapter 1:
Introduction

Drought and environmental change are often associated with deteriorating socio economic conditions, dispossession and forced migration by herders from the affected areas. This was certainly the prevailing view when I first started studying post drought migration as an Asssociate Expert posted in Dakar in late 1980s. At that time the issue of drought and migration carried with it connotations of crisis and disaster. The pages of development plans, evaluation reports and other types of grey literature were filled up with visions of a population of destitute herders, advancing deserts and a shrinking resource base. Such reports conveyed the message of the need for immediate action to alter the imbalance between nature's (supposedly shrinking) carrying capacities and the increase of livestock and human population. Hence, recommendations emphasised the urgency for establishment of stock control and for herders to diversify their sources of income and to find alternative ways of surviving a production system in crisis.

In the late 1980s, many pastoralists were living a harsh life in the aftermath of the drought. But the findings of even my first field trips to the Ferlo - where my Senegalese colleague and I set out to find out what was indeed the nature of the crisis of pastoralism - turned out not to fit this gloomy picture. This impression was re-enforced during the succeeding years. Whereas I met many herders who could tell of considerable livestock losses during the droughts, I found relatively few destitute herders. On the contrary, a large number of displaced livestock owners were actively engaged in adapting to new conditions. These herders had been forced by the drought to abandon their area of origin and move southward. Nonetheless, it seemed that the post-drought period, in many ways, had become a period of increased opportunities: not only for those herders who had been forced to migrate but also for the indigenous herders in the areas to which the migrants moved.

This discrepancy between the alarmist recommendations and the realities in the field, has to a large extent been the "drive" of my research. This may help to explain why I have dealt at such length with certain stereotypes and theoretical models before discarding them altogether. For the dissertation is to a great extent an attempt to fit my impressions from the field - and not least my fascination with the entrepreneurial herders of the Ferlo and their conflictive and contradictory strategies - into the somewhat rigid theoretical moulds often put forward in the context of natural resource management.

It is also an attempt to explore what has tended to become almost a "blind spot" in the debate on environmental degradation and the decline of pastoralism: What actually happened to those herders who were forced to move southwards in the aftermath of drought? Responding to this obviously implies wider queries into questions such as: How did the drought refugees deal with

the new opportunities and constraints offered in their new homes? How did they adapt their income strategies to the new situation in which their old priviledges based on group membership were left behind? And not the least: How did they manage to renegotiate access to land and water among groups of competing producers with whom they entertained at best very distant kinship ties?

Debates about the effects of the great Sahelian droughts of the 1970s and 1980s have tended to focus on the physical processes of land degradation and overgrazing. Droughts have been perceived as the culmination of a long term disequilibrium between the carrying capacity of the land and the increasing number of animals and people. The general understandings of the effects of drought have tended to rest on a number of general and simplified arguments about how people impact on their environment. Drought has been perceived as more or less synonymous with environmental degradation. Hence, the effect of drought on the livelihood of the local population is discussed within a crisis scenario where the decline of pastoralism is viewed as an unquestionable and almost irreversible fact. In this perception drought-related migration is considered to be the ultimate exit option of drought-ridden herders who try to avoid total destitution. Migration movements are therefore treated primarily as yet another indicator of the shrinking resource base, justifying an urgent need for altering the, supposedly unsustainable, pastoral production systems. Indeed, the very limited number of studies concerned with what actually happened to those herders who where forced to migrate may be seen as epitomizing the general assumption of crisis and decline of pastoralism. For as ends (in terms of decline) are determined in advance, further scrutiny of the adaptation of drought-ridden herders to their new environment becomes unwarranted and unnecessary.

The unilineal results of such models present a number of methodological problems. As "drought refugees" are reduced to the role of passive victims, almost a residual category, only very limited space is left for uncovering the unexpected and innovative ways in which drought victims may adapt or take advantage of new situations. As a result, these simplified models have tended to cast a blind eye on the rapid developments in recent history in many Sahelian countries. By ignoring the adaptive capacities of the local population, a number of local skills and management techniques are rendered invisible to researchers and policy makers. Instead their attention is directed to ways in which external intervention can alleviate an allegedly stagnant and outmoded system of production and replace it with something more efficient. The result is that interesting opportunities for studying the resilience and the adaptive capacities of pastoral societies are lost. Similarly, a unique opportunity for studying how and why the actors and institutions involved in the process of transformation act and operate will be foregone. It is this challenge that the present project aims to take up.

This dissertation tries to evoke a different picture of post-drought rehabilitation and the effects of

drought-related migration. What is presented here is the story of a conflictive, but nonetheless very successful integration of a large group of herders who were forced to move southwards in the aftermath of the droughts of 1972/73 and 1983/84. Confronted with the combined effects of poor rains and the proliferation of irrigated agriculture into former grazing lands, these herders abandoned their relatively sedentary agro-pastoral lifestyle along the flood plains of the Senegal River Valley and moved to the Southern edge of the Ferlo-region. Many of these herders did not return to their areas of origin once the rains resumed. Instead they remained in the southern Ferlo, transforming their productive assets into a highly specialized and mobile production system based mainly on the raising of sheep.

The outcome of this rather massive influx of foreign herders into the southern Ferlo was very different to what was anticipated. Post-drought migration acted as a catalyst for technological innovation and lead to a minor revolution in the herding systems involving increased herd productivity and a dramatic rise in prosperity among herders. Within a very short time span, herd sizes increased dramatically. For this reason, many herders indigenous to the area started copying the management techniques of the newscomers. The paradoxical result of this process of migration is therefore that, although more livestock is now living in a smaller area, it is in better shape and reproduces faster than before the drought. The single most important factor leading to this success was the invention of a new device for transportation of water. Huge tractor rubber inner tubes were recycled into water containers. With a donkey cart, these tubes can transport large quantities of water over long distances.

Obviously the influx of a large group of foreign herders into this frontier zone between agricultural and pastoral production provoked important changes in land use patterns and in herding practices. In this way post-drought migration contributed to intensify the inherent tenure conflicts in the region. These tensions were, however, not solely the result of increases in population and livestock numbers leading to greater pressure on the resource base, as stipulated by conventional environmental wisdom. It was just as much the result of changing relations of power within the institutions controlling access to resources. For the new economic and political opportunities triggered by post-drought development also entailed the development of new arenas of struggle.

The FuutankoBe herders from the Senegal river valley acted as catalysts of both conflict and change. Their post-drought migration and adaptation therefore provide a convenient lens for examining the often intricate processes of change in access and control which followed the droughts of the seventies and eighties.

Research objectives:

The overall ambition of the dissertation is to explore the institutions and processes through which individuals and groups gain access to, exploit and exercise control over resources. Further, how these processes interact with other social, economic, political and ecological processes over time. As the research was undertaken in an area of extensive livestock production systems it is concerned mainly with resources held in common i.e. water and pastures.

More specifically, the project aims to analyse the changes in access to water and pastures that post-drought population movements have triggered. But at the same time it aims at studying the changing configurations of power and obligations which have ensued. These developments have neither been inevitable nor linear, but have been part of a process of political negotiation and cultural transformation whose ends were largely unpredictable. The project is, therefore, also an attempt to reveal the micro-politics surrounding the allocation of grazing and watering rights in order to understand the dynamics of these transformations. Getting politics back into the study of natural resource management might also be a way of treating drought-refugees as active agents of change rather than as passive victims of drought.

'Getting politics back into the study of resource management' also requires an understanding of why politics has tended to evaporate in the Natural Resource Management (NRM) framework. The first part of the dissertation is therefore an attempt to explore conventional wisdoms and mainstream theoretical models which inform most development planning related to post-drought rehabilitation and range management. This critical exploration is carried out both in relation to conceptions of the physical/biological environment and in relation to the institutional environment which is supposed to ensure a more sustainable use of natural resources. In this way, the dissertation is an attempt to move away from the static, unilineal and degradation-oriented approach of the NRM framework and towards a framework which is more capable of explaining the dynamic and successful adaptation of the FuutankoBe. Essential for such a framework is that it provides a means for conceptualizing natural resource environment and the landscapes not only as degrading but as transforming as a result of both ecological and social processes.

The dissertation also aims to steer away from a conception of institutions as only a question of establishing a more efficient set of rules in order to regulate the conduct of local users. Instead the focus will be on political adaptation involving political negotiation and social manoeuvring over rights to resources and rights to political voice.

The study of the migration process initiated by the FuutankoBe[1] herders provides a particularly interesting case or angle for analysing political negotiations linked to changing relations of property and access to resources. On the one hand, the increase in population and animal numbers contributed to intensify competition for natural resources. On the other hand, the innovative production strategies developed by the newcomers provided new opportunities and contributed to a general rise in the prosperity of the micro region. This contradictory relationship between newcomers and firstcomers is reflected in social manouevering over rights to resources and in the struggles to gain political power. It can also be traced in the current debates related to political and social identity and in the political struggles over difference and belonging. Hence, the integration process of the FuutankoBe herders into the agro-pastoral societies of southern Ferlo provides an opportunity for examining the intricate ways in which tenure institutions and struggles over access to resources have unfolded in a particular micro region. Hopefully such an 'unfolding' may contribute to revealing clues as to how political transformations take place both at the local and at the national level.

In order to study the effects of drought-related migration on land use patterns and tenure institutions, the study will address the following questions:

- How did the migrant herders adjust their production systems to the new opportunities offered by the new environment?
- How did they adapt their income strategies in a situation in which access to resources had to be negotiated from scratch, with a group of competing producers with whom they entertained at best very limited social relations?
- In what sense has the influx of migrants shaped the production strategies in the area of reception and what effect has this had on the local institutional mechanisms regulating access to natural resources?
- How have the existing resource management institutions (rural councils, deep-well management committees and traditional land management institutions) been able to cope and adapt to new conditions?
- What have been the effects of state policies of devolving control over natural resources to local level institutions?
- How has this shaped the arenas of resource competition?

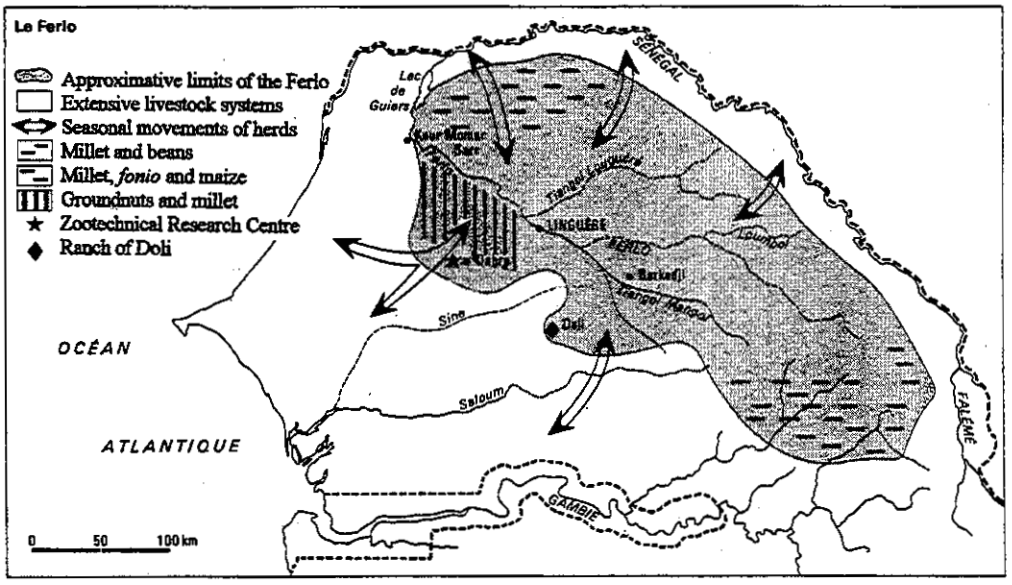
The setting.

The Ferlo, in which this study was conducted, is the northern pastoral zone of Senegal. This dry and sandy territory is circumscribed, so to speak, by the 'bend' of the Senegal river. As a territorial

[1]Herders from the Fuuta area, along the Senegal River are refered to as *FuutankoBe*. Locally these migrant herders also refered to as *egge-egge,* from *eggol-* movement, referring to their mobile lifestyle.

entity, the term Ferlo is fairly vague. According to Ba (1986)[2] and Benoit (1988), Ferlo was originally the hinterland of Senegal: the "non-region" into which one could seek refuge, a 'wilderness' where marginal people and those excluded from power could hide and regain forces. The Ferlo was a space of security and of peace for those with little interest in the exercise of power or those opposing it (Benoit,1988:97): unlike the early state formations located along the river valleys - the Jolof kingdom (in the south) and the kingdoms of the Waalo and Fuuta Tooro along the Senegal River. While the Ferlo originally referred to one of several hinterlands - the Ferlo of Matam[3] or the Ferlo of the Fuuta Damgan - the term is now widely used to describe the large pastoral zone located west of Lac de Guiers and east of Matam. This zone is distinguished in the north by the flood recession economies of the Senegal River Valley and in the south by the agricultural economies of the Peanut Basin and of Senegal Oriental.

Map 5.
The Ferlo (in its widest sense)



Source: Département d'Histoire et de Géographie de l'Ecole Normale Superieure de Dakar, 1989.

The Ferlo is part of the ecological and cultural transition zone between the savanna woodlands and the more arid environments to the north. This position has affected both its land and its

[2]According to Ba, Ferlo comes from *ferlaade,* sitting cross-legged, and describes a vast , forested area where one can sit crosslegged, as a sign of freedom (Ba, 1986:369)

[3] Some scholars prefer to use Ferlo to refer only to the Ferlo of Matam, the eastern part of the pastoral area from where the Fulani subclan named Ferlanke orginate (see for example Bonfiglioli and Diallo, 1988).

people. It is a zone in which the flora and fauna of the Sahara is mixed with the flora and fauna of the more humid West African savanna. Although the absolute plant and animal population is not large, the high ratio of species to total population - the biodiversity index - accounts for the great resiliency of the natural environment (Webb,1995:3). Nonetheless, this richness in species is not matched by a similar high biological productivity which, in these areas, is governed principally by the level of precipitation. Rainfall is low and erratic, (between 250-450 mm p.a.) concentrated in a single period of three to four months of the year, and extremely variable in both a temporal and a spatial sense. As a result, the biological production and seasonal composition of the vegetation, on which human and animal population depends, varies significantly: not only from one year to another, but also from one area to another.

Recurrent shifts in climatic conditions have contributed to a constant transformation of Sahelian lifestyles. During long periods of increasing aridity, agricultural communities have been forced south while transhumant herders have been drawn into areas of abandoned, once cultivated areas. Similarly, herders have been forced northwards during periods of increasing humidity when the risks of trypanosomiasis and malaria have increased in the southern areas. In such wetter periods, farmers have tended to move northwards as conditions for rainfed agriculture in these areas improved. Hence mobility and flexibility have always been inherent features of the production systems of the area. Not only the livestock-rearing Fulanis but also the agriculturalist Wolofs and other groups, have retained high degrees of spatial mobility.

Hence, when the Ferlo is portrayed as the land of the Fulani: "Les migrateurs aux jambes minces[4]", as they are depicted by Senghor, the former president of Senegal, this image is not very acurate. For the Ferlo is also inhabited by Maures, Wolof, Serer and Toucouleurs. In the course of time, these people have mixed with the lifestyles of the Fulanis. Certain Wolof herders have taken on a Fulani identity. Likewise the sedentary Fulanis in Eastern Ferlo have become difficult to distinguish from the Toucouleurs of the Valley (Grenier,1960:36). This reflects the fluid and porous character of social relations and identity.

In the same way, flexibility and mobility are prominent features even at intra-household level. Individual family members often travel extensively. Young men with access to a horse or donkey cart may travel to the irrigated fields in the harvest season to offer their services transporting the harvested grains. Elder men frequently leave during long periods in the dry season to do 'maraboutage' i.e. commercialize their 'Fulani knowledge' in the form of amulets, *grigri*'s, and other forms of traditional healing. The women may go to 'see a relative'[5] or look for short term

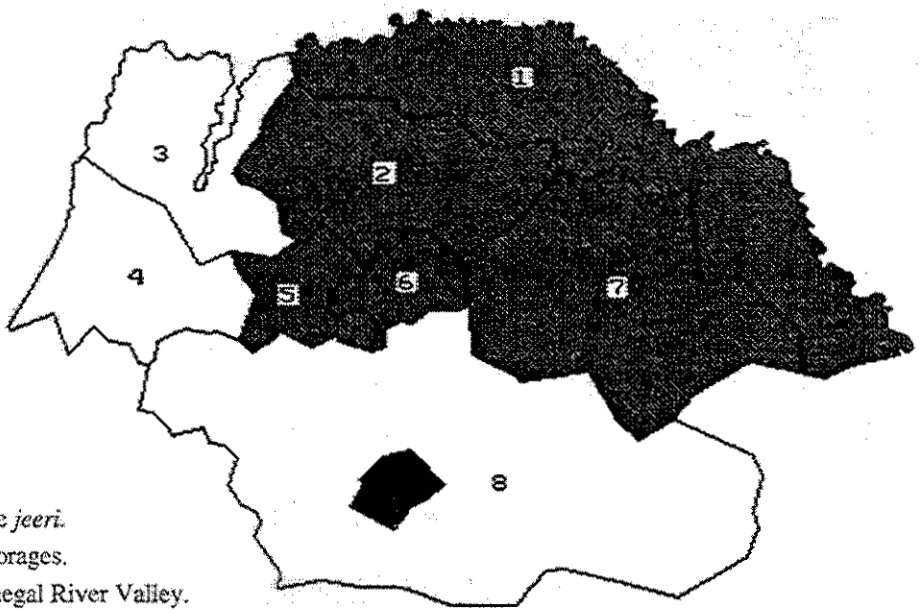
[4] "The migrants with the skinny legs"

[5] To 'go and see a relative' is a common paraphrasing for moving over to a richer relativein order to alleviate the charges on the household in times of crisis.

employment in other geographical areas as part of a risk-management strategy. Finally settlements are not very permanent as people frequently move to establish new villages or sections of villages in previously uninhabited bush areas or in places where interesting production opportunities emerge.

The production systems

Map 6.
Socio-economic zones of the Ferlo



1. *Waalo* and close *jeeri.*
2. Reserve des 6 forages.
3. Delta of the Senegal River Valley.
4. Nord Cayor-Gandiolais.
5. Lower valley of the Ferlo.
6. Upper Valley of the Ferlo.
7. Eastern Ferlo.
8. Southern Ferlo.

(Source: Oussouby Touré/CSE, 1990)

The Ferlo region may be divided into several, but somewhat overlapping production zones[6];

1) The *proche dieri,* the northern most region alongside the Senegal River Valley, where the pastoral production systems coexist with irrigated and flood recession agriculture.

[6] For a more thorough explanation of the different production zones see Touré, O., 1989:" Le zonage du Ferlo, analyse des modes d'exploitation du milieu et de leur evolution.". Rapport partiel , Centre de Suivi Ecologique, Dakar.

It is from this region that the majority of drought refugees stem.

2) The ancient 'desertic' region of the *kooya*, or *zone des 6 forages*, the area in which the first boreholes were installed in the 1950s. This area is the traditional heartland of cattle production but agricultural production is limited due to insufficient rains. As one moves southwards precipitation increases and agricultural production becomes more prominent.

3). The south-western fringe of the Ferlo, which forms the borderline between the predominantly agricultural zone of the south and the mainly pastoral production systems in the north. It is this area which constitutes the core area of this study.

The southern fringe of the Ferlo covers the upper Ferlo valley and eastern Ferlo in the arrondissements of Barkedji to the east and the communauté rurale of Ranerou[7] to the west. Traditionally, the area has been dominated by semi-sedentarised Fulanis who combine (cattle) herding with limited agricultural production to cover part of the family's consumption of millet. Alongside them, black Maures, former slaves of the Arab-Berber Mauritanians, have specialized in the extraction of gum arabic from the *Acacia senegal* tree. This they have combined with small-scale agro-pastoralism, whereas Wolof farmers provide the bulk of their income from agricultural production.

Significant differences may, however, be found between the eastern and western parts of the area. The sandy soils of the eastern part attract a large number of Wolof groundnut producers, resulting in significant agricultural encroachment on the grazing lands. In contrast to this, the Wolof have been less tempted by the laterite soils of the east which are more adapted to millet production, the extraction of tree products and livestock production. In this area, raising sheep has traditionally been more important than in the western part of the Ferlo (Touré,1989). Population pressure is considerably lower in this region than it is in the Barkédji region (4,85 inhabitants per sq.km in Barkédji as opposed to 1,25 inhabitants per sq. km in the vast communauté rurale of Ranérou)[8].

During the last 30-40 years several processes of change and adaption have taken place in the Ferlo region. On the one hand, a significant enlargement of the productive capacities of the region occurred since the mid 1950s. At this time, the drilling programme of the colonial administration established a network of mechanized deep-wells in what had formerly been considered as the "Ferlo desert". Within a few years, a large majority of herders had re-organised their system of annual transhumance to fit with the new opportunities offered (Barral,1982:43-51; -

[7] Whereas the study comprises several communautés rurales comprised in the arrondissement of Barkédji, only the vast communauté rurale of Ranerou is comprised from the Arrondissement of Ogo.

[8] The figures are calculated on basis of the 1988 population census: Republique du Sénégal, Ministère de l'Economie, des Finances et du Plan, Direction de la Prévision et de la Statistique, 1988: Répertoire des Villages. Saints Louis, Louga.

Pouillon,1988:180). The traditional exchange system between the agricultural and pastoral zones was replaced by a system whereby most herds stayed in the rich pastures of the Ferlo during the dry season too. One effect of the drilling programme was a considerable increase in herd size throughout the 1960s and 1970s.

Parallel to this process of enlargement of productive opportunities went a process of diminution. With the expansion of the groundnut economy at the turn of the century, a process started by which large areas of former grazing lands in south eastern Ferlo were converted into peanut fields. This "colonization process" which is still ongoing, was further spurred by the improved water accesibility in the Ferlo. It included both large-scale pioneer farming communities, the so-called *daara*'s organised by the Islamic brotherhood of the Mourides[9], and individual Wolof smallholders. These smallholders had been pushed out of the traditional peanut-producing areas in the south by population increase and deteriorating soils. So when the drought victims arrived from the Senegal river valley, the southern fringe of the Ferlo was under pressure from population movements, not only from the north but also from the south.

The threat of agricultural encroachment on the pastoral economies in the southern fringe of the Ferlo has been analysed in several works (namely Santoir,1983; Pellisier,1966; Weicker,1993 and Juul,1993). This is not the case for the influx of pastoralists from the north. Despite its profound effects on both production systems and institutional arrangements in the Ferlo, the influx of drought victims from the north has passed relatively unnoticed so-far, apart from certain hints in the articles on pastoral tenure by Oussouby Touré (1991) and in the works of Santoir on the refugees of the Senegal Mauritanian conflict in 1989 (Santoir,1990a; 1990b; 1993). Nonetheless the case is interesting since, on several counts, it challenges mainstream views on common property resource management.

Some initial views:

As mentioned above, a major thrust of this research project has been to establish a theoretical framework that could comprise all the diversities and contradictions observed during fieldwork: Such a framework should help me to avoid the perception of pastoral societies as stagnant and marginalized and enable me to go beyond the somewhat unilineal perception of development characteristic of much of the NRM and Common Property literature.

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[9]The Mouride brotherhood is one of the three Sufi Muslim orders which between them claim spiritual allegiance to the Muslim population of Senegal .Since the turn of the century, the Mouride saints have provided the framework for a mass movement of agrarian settlement which enabled them to expand their activities into vast , hitherto uncultivated areas.(This will be explained in further detail in the following chapter.) For an exploration of the effects of Mouride expansion on the pastoral economies of the arrondissement of Barkedji, see Juul,1993).

In order to develop such a framework a number of basic theoretical perspectives are presented here:

a). The decline of pastoralism or drought as a revelatory crisis?

As mentioned above, many authors speak of pastoralism within a crisis scenario (see Baxter, 1991; de Bruijn and van Dijk,1995; Markakis,1993; Fratkin,1997). They consider the 'decline of pastoralism' as an unquestionable, and almost irreversible, fact. But, as shown by Dietz, they seldom define what they mean by decline. Is it the decline in the absolute number of people that can be regarded as pastoralists or is it a question of a decline in the contribution of pastoralism to pastoral communities? Is this happening because of 'depastoralisation' for a proportion of the households or because of a growing importance of non-pastoral features in the economy of the households? Or is it the absolute and structural decline of the number of animals in the pastoral area, due to either drought or loss of grazing lands? (Dietz,1993:85)

Compared to decline, the term 'crisis' might be considered a more appropriate concept because it allows for the possibility of recovery (see Markakis,1993:ix). But as pastoralism may be conceived of as a model of management in an unpredictable environment it may be hard to find periods where the term is not applicable. Even statements such as Dyson-Hudson's: "The pastoral strategy so successful in the past is no longer possible" should be the object of further scrutiny (Dyson-Hudson, N., 1985 qu. from Markakis,1993:ix).

Looking at the Fulanis of the Ferlo, it does not seem that an uncritical adoption of a 'crisis' scenario is likely to generate very fruitful insights. Rather, the 'crisis' or 'decline of pastoralism' scenario tends to work in a unilinear way by which the ends are given beforehand and which is insensitive to the positive and innovative aspects of the post-drought migration process.

An alternative and more open-ended perspective on pastoral crisis such as droughts is offered by Jacqueline Solway, who analyses the effects of the 1979 and 1987 droughts in Botswana in terms of a "revelatory crisis". The term revelatory crisis stems from Marshall Sahlins (1972) and describes a situation whereby socio- economic patterns are sufficiently interrupted by drought or the like, to lay bare contradictions in the existing order, disruptions that may have been latent or contained prior to the drought (Solway,1994:471). In this way, drought may disrupt conventional routines sufficiently to allow actors to innovate normative codes. Hence, drought becomes a time of experimentation in which taboos may be violated and moral codes flaunted. A period where something which has been unaccepted becomes acceptable.

Solway's point is that droughts are perfect scapegoats, as all social dislocations and sufferings may be attributed to the drought. Such basic problems such as inequality in access and power relations

may be left unacknowledged and therefore not confronted. In a paradoxical manner, the drought therefore reveals and exposes contradictions and deteriorating conditions, while at the same time permitting them to be concealed and mystified (ibid.:473).

In many African societies, the relations existing around reciprocal access to, for example, water sources play a significant role in binding communities together in networks of rights and obligations. But other items of property also lend themselves to reciprocal use. In fact, local concepts of property facilitate reciprocal use as rights to property are simultaneously individuated and dispersed. Most items may be identified with an individual, but at the same time a larger group maintains use rights to the 'family estate'. This is not to say that there is no difference in access, rather that property exists in a continuum. Commodification may therefore grant greater, but not complete, legitimacy to the rights of the individual or the narrow group of owners. But while one person's claims may rule out the viability of others', it does not preclude the other claims, nor does it negate the legitimacy of these claims. Such a system obviously invites constant redefinition and negotiation. Often it result in a whole series of counter claims being made among kin (ibid.: 482-484).

Depending upon their location in the politico-economic structure farmers and herders have different and at times competing interests and interpretations as to the extent of legitimate claims to property. Whatever their claims, local conceptions of property still render a variety of contradictory claims legitimate. To deny such claims therefore requires a rationalisation that is rarely universally accepted.

In such a situation, a locally recognized crisis such as a drought, offers an opportunity for a redefinition of the range and priority of property relations and claims. Drought to some extent becomes a licence or moral pretext for the denial of communal claims where refusal, before the drought, would have been considered anti-social.

In Solway's example, the local emerging commercial elite have used the drought as a pretext to withdraw economic resources from the pool available for communal purposes. This step by the local elite is part of a process of commodification of social relations. Illustrations of this process are: reducing the sharing of milk as part of a shift towards commercial livestock production[10] and the way in which richer farmers avoid their traditional obligations of lending their draught oxen for plowing the fields of their destitute kin by converting to tractors that do not so easily lend themselves to reciprocal use[11].

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[10] The longer the calves suckle, the faster they reach maturity which in turn means more frequent calvings.

[11] With regard to transformations occurring at other more ideological levels, Solway points to the experimentation by some of the more wealthy households with 'new' syncretic religions based on western Christian individua-

As we shall see later on, the denial of access to water from certain deep wells in Senegal, or the appropriation by herders of private grazing grounds or privately dug wells, are similar examples of transgressions on codes of conduct which, due to the context of drought, have become less improper.

Not only may the elite use drought as an opportunity for changing presumably fixed social relations. Drought may also provide an opportunity or a point of entry for the state to insert itself in the life of citizens in new and unexpected ways e.g. as the instrumental effects of drought relief measures[12].

In the pursuit of a less one-dimensional image of the processes of adaptation to the post-drought situation in Northern Senegal, I have sought to avoid the crisis perspective and its derived orthodoxies. By analyzing drought in the perspective of a revelatory crisis, a wider perspective is retained. This perspective stresses the multiple and often contradictory courses that development in the region may take. It leaves open the possibility that counter-hypotheses might emerge.

b). Stagnation or adaptation:

In the 1970s and 1980s, pastoralist research was dominated by the cultural ecology framework of adaptation. In trying to explain how pastoralists responded to drought and environmental change, anthropologists and ecologists emphasized the rationality of pastoral land use systems based on herd flexibility, diversity and mobility[13]. In order to "rehabilitate" herders from the perception that they are irrational destroyers of their immediate environment, a counter image of pastoralism was put forward. This image views herders as enaged in the one and only form of resource exploitation which can work out in a sustainable manner under the difficult conditions characterizing most pastoral areas. Inherent in this counter image is a tendency to portray pastoral societies as timeless and conservative, often with a "penchant" towards ecological determinism. Because nomads or pastoralist live under such harsh conditions, at great climatic risk, it is held that they are unwilling to change the well-adapted and balanced patterns of resource use which they have developed over many generations.Consequently, difficult and risky conditions tend to discourage openness to economic and social experimentation[14]. In this way, this perception

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lism. This illustrates the attempt by the elite to find cosmologies more consistent to their emerging world views than those grounded in the ancestors which affirm principles of mutual responsibility and where ones' wellbeing is inseperable from that of ones' kin.

[12]See Ferguson, 1990, and also chapter 2.

[13]See notably Dahl and Hjort, 1976.

[14]This point is made in Dahl and Hjorts volume on the Beja Nomads of North Eastern Sudan with the illustrative title "Responsible man" . It is, however, important to stress that although Dahl and Hjort stress the conservative

contributes to re-enforce a picture of pastoral societies as stagnant and unchangeable (see also Khazanov, 1984:69-71).

But, as outlined by Pouillon (1990), pastoral societies turn out to be less secluded, specialised and, not the least, less static than anticipated. As shown by Khazanov (1984:82-84), it is hard to find societies subsisting only on pastoral produce. Rather than self-sufficient and isolated, pastoral societies relate actively to other parts of society; through markets, states etc. They are better characterized as a multi-resource system which is capable of adapting very quickly to new opportunities.

In a recent article, Salzman reflects on a propensity in his earlier works to deduce the character of social institutions from the character of the environment[15]. In doing so, he emphasized the environmental impact upon social institutions, while neglecting the underlying cultural components. Nonetheless, adaptations such as pastoral nomadism should be understood as cultural constructions brought to the environment, rather than behavior patterns generated by the environment (Salzman, 1995:161). For, although human adaptation to an area takes account of the environmental conditions, it is important to stress that there are many kinds of adaptations. Many independent influences - in terms of knowledge, technology, organization and values - which in any particular chain of causality lie behind a particular outcome. Hence it is necessary to adopt a pluralist perspective that stresses multi-causality and focuses upon the interaction of many different factors as the processes generating the patterns of human custom and action, that we wish to understand (ibid.:163).

I do not adhere to a concept of adaptation confined to describe the slow, and unconscious, response to changes in the economic and natural environment. On the contrary, I conceive of adaptation as the concious adoption of a large number of different innovations enhancing the ability to cope with constraints and to take advantage of new opportunities. Needless to say, this does not imply that abilities for taking advantage of new situations are equally distributed among individuals.

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strain in Beja culture, to explain the structural reasons why innovations are likely to be confined rather than spread in Beja population, they reject the timelessness associated with the traditional stereotype of herders stressing that the Beja have adapted to changes in their surroundngs but have done it in a way as to saveguard their cultural and social identity as well as their resources from external intrusion.(Hjort af Örnäs and Dahl, 1991:3,8)

[15]The individualistic and uncoordinated nomadic movements of Somali herders were seen as resulting from the scanty, erratic and unpredictable distribution of rainfall and pastures while the regular and well-coordinated movements of the Basseri of South Persia resulted from the predictability and generosity of their natural environment. On the political level the differences between the contingent polity of the Somalis based on alliances between strong corporate groups of patrilineal kin of the Somalis as opposed to the tribal organization of the Basseri based on political allegiance to a central authority, the Tribal Chief, (i.e. egalitarian vs. hierarchic features) could also be explained with reference to the specificities of the climatic conditions (Salzman, 1995:159).

c). Pastoralists, Politics and the State.

The perspective of most recent nomadic studies argue, explicitly or implicitly, that nomads become increasingly marginalized, not the least in their relations with the state. Klute summarizes some of the most prominent views of the relations between pastoralist and the state (1996:3). Nomads are, in most cases, perceived as victims of the state. The relations between nomad and state are characterized by mutual misunderstandings, lack of comprehension and conflicting perceptions in almost every aspect. According to Salih (1990) this is a "hindrance to any meaningful communication between the two parties". It is also argued that nomadic groups are put under enormous political pressure which leads to their economic and/or political marginalization. Nomads are described as unable to cope with decisions imposed on them by administrators and development experts. The reaction of nomads is described as refusal, retreat or resistance.

Attempting to give a more balanced view of state-nomad relations, recent studies have sought to understand nomads not only as passive victims of the state but also as active agents in the nomad-state relationship. Reviewing the histories of nomadic groups presupposes a far more differentiated relationship, ranging from conflict, through co-operation to incorporation. Just like other groups, they have interfered with, and manipulated, the colonial and postcolonial state. Sometimes by reinforcing their ethnic identity and strengthening national identies, at other times by incorporating themselves into the state apparatus: by acquiring high-ranking positions or well paid posts.

At the local level too, herders actively manipulate and re-interpret the policy discourses offered by state administrators, bending them to their own advantage. Not least because of the physical distance between the state apparatus and the areas occupied by the herders, Sara Berry perceptions of state-peasant relationship as being intrusive rather than hegemonic (Berry 1993:48) seems relevant for understanding the relationship between herders and the state in the Ferlo region.

Within mainstream NRM thinking, it has been fashionable to attribute detrimental resource management practices to the effects of obtrusive state policies. The panacea to improve local management has therefore been to transfer authority from centralist state institutions to local user groups. Such groups are considered to be more responsible towards their common productive assets.

But, as shown by Goheen (1992), Peters (1984;1994) and Berry (1993;1994), policy initiatives such as the devolution of power over resources to local institutions do not function in a vacuum. Rather, they feed into ongoing local struggles for political power and material gain. For, contrary to what is often believed, these new state-sponsored institutions have not eradicated older political formations. Rather, the new resources generated contribute to re-invogorating older

political alliances and divisions or to fuelling new ones (Peters, 1994:45). Hence devolution of power from state to local government contributes to opening new arenas for struggle: arenas in which local elites can manouevre to maintain or re-inforce their political power.

In this process control over key resources such as boreholes becomes a means to acquire political power. The new state-promoted institutions - such as borehole committees and rural councils - become vital institutions in local political and economic life and are used as such by the local political elite. Local struggles over access to resources therefore tend to become politicized as they are mixed with struggles for larger political goals. For these reasons, debates about, for example, the running and maintenance of boreholes become very political.

Consequently, the transformation of livestock and resource management systems in the aftermath of droughts must be regarded as both a social and a political process. Hence, rights and control over boreholes, land and livestock constitute highly contested terrains.

It is this conception which will be adopted here. This is in contrast to the simplistic policy presciptions presented above. These policies overlook the political and social aspects of resource management. But by so doing, such politicies do not mesh with the actual realities of social life and are therefore not very meaningful.

d) Landscapes and the transformation of the environment.

In much of the literature of an environmentalist stamp, landscapes are perceived as being almost inevitably in a process of degradation. In the light of the Ferlo case, where overgrazing in spite of rapidly growing animal pressure appears not to be a pressing issue, the need for a more 'spacious' framework for understanding environmental change has surfaced during the process of finishing this dissertation.

Such an alternative view is offered by Leach et al.(1997:14) who stress that landscapes and environmental change may be regarded as "the result of combinations of contingent factors, conditionned by human intervention, sometimes the active outcome of management, and often the result of uintended consequences".

The importance of regarding landscapes as transforming, not only degrading, has been emphasised in recent works by geographers, anthropologists and others (see for example Leach and Mearns, 1996; Leach et al., 1997; Parkin and Croll, 1992; Fairhead and Leach, 1996 and Peet and Watts, 1996). Such works have tried to merge the insights of the new ecology with a better understanding of the land use practices of Africa's farmers and herders. In their view, landscapes should be regarded as the product of both ecological and social history. The application of such an historical

approach may, according to them, be a key to reveal the logic and rationality of indigenous knowledge and organisation in NRM. For, as the spatial and temporal variability is stressed, together with the non-equilibia processes and the histories of disturbance events[16] , a different view of landscapes as transforming, instead of just degrading, emerges". (Leach and Mearns, 1997:14).

The method proposed is to frame environmental issues as 'people in places' and as part of a history. This sets quite different questions about people-environment interaction and the ecological processes driving environmental change. Instead of concentrating on the character and degree of degradation and on how harmony may be reinstalled, we need to ask questions such as: "Which social actors see what components of variable and dynamic ecologies as resources at different times?", "How do different social actors gain access to and control over resources?" or "How does natural resource use by different social actors transform different components of the environment?". (Leach et al., 1997:14). Here the focus is on local communities seen as a group of differentiated social actors, while the undifferentiated 'environment' has been replaced or rather disaggregated into a number of particular environmental goods and services. What is being examined is the way in which different social actors gain the neccesary capacities to legitimate command over resources. Effectiveness is highlighted in order to emphasise that resource claims often are contested and that, in the power relations prevailing, some actors are likely to have more weight than others. In addition, some actors may be unable to mobilize the neccesary resources (capital or labour) in order to make efficient use of other assets (for example land). Finally, the issue of legitimacy is central because sources of legitimacy may conflict and different actors may expouse different views of the legitimacy of a given activity (Leach et al. 1997:16-18).

This very interesting point of entry could easily have been developed more than has been the case in the present work. Nonetheless, the need for differentiating the social actors and perceiving environmental transformation as open ended are central understandings to this dissertation.

Methodology

In the introductory comments presented above, attempts have been made to establish a framework for understanding recent developments in the Sahel more fitted to embrace the often contradictory processes observed during fieldwork.Crucial to this attempt has been the promotion of a perception of drought as a process of change containing new opportunities as well as constraints.

The conventional wisdom underlying many projects related to post-drought rehabilitation and improved resource management tends to consider drought periods as year zero; to which may be attributed a 'before' and an 'after'. "Before" is synonymous with 'the traditional' , where balance

[16] These issues will be elaborated further in chapter 2.

of nature prevailed, while 'after' refers to present turmoil or 'crisis'. Obviously, such short term historical perspectives are not well fitted to understand long term processes of continuity and adaptation from which contemporary pastoral societies are formed. The issue of time or historicity is therefore central to the conception of change as disruption or continuity. Emphasizing continuity and adaptation and avoiding characterizing traditional societies as stagnant entails looking at development in a longer time span.

But how can one unravel the changes occurring at the local level, take account of the diversities and contradictions observed and distinguish between change as crisis and disruption or change as transition or even continuity?

One possibility is the detailed historical study, as the one offered in Pauline Peters' fascinating account of the process of division of the common range of Botswana since the days of the Protectorate. Peters gives a detailed account of how the shifting discourses of the alternating representatives of the colonial and post-colonial administrations were used and manipulated by the Tswana elites to fit their own political purposes. This enables us to understand how the "traditional" institutions representing the interests of the tribe (*kgotla*) have adapted and transformed in such a way that the "modern institutions in charge of managing local resources in many ways function as a mere overlay to the traditional structures of dominance" .

Such an in depth historical approach has not been the objective or ambition of this study. First of all, I do not have sufficient historical material. Although my field area covers more than 50.000 square km, its classification, in a geography textbook, as "un vide demographique a l'est"[17], is by no means a coincidence. The Ferlo is certainly not among the best described parts of Senegalese history. In spite of its all embracing title: "Les Paysans du Sénégal", no chapter is offered on the Fulanis of the Ferlo in the celebrated volume on rural Senegal by Paul Pelissier.[18] Although much work has been done in recent years to unravel the histories of the powerful kingdoms of pre-colonial Senegal [19] very few attempts have been made to establish a broad historical account of the Ferlo.[20] Singular exceptions are Mark Freudenberger's dissertation from 1994 on the history

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[17] " a demographic void towards the east"

[18] He does treat the Mouride encroachment on Fulani grazing lands but only further south, in Senegal Oriental

[19] See notably Boubacar Barry's "Le royaume du Waalo" from 1985, Abdoulaye Bathily "Les portes de l'Or; le Royaume du Galam" from 1989 and Abdoulaye Bara-Diops classic account of Wolof society: "La société wolof" from 1981.

[20] A few more contemporary studies such as Marguerite Dupire's study of the social organization of the Peul Djengelbe of Djoloff (Dupire 1970) as well as a few mainly descriptive articles have been published on the region (Adam, J: from 1915 and Oumar Ba on Fulanis of the Djoloff in the 19th century). Finally Grenier's important work in relation to the installation of the first boreholes in the 1950's as well as the historical accounts in Santoir and

of gum arabic production in the Linguere department and a short article, by Michel Benoit from 1988, on the historical development of the landscape of Ferlo[21].

Obviously, more historical material could have been found in the accounts of the administrative officers in charge of the area during the colonial period. Nonetheless, that I have limited my visits to the hot and dusty offices of the "Archives Nationales" in Dakar is quite deliberate. Rather than being an historical record, my work has centered on recent change as it is perceived by the different actors in the field. Such accounts are rarely found in the archives and it has been time-consuming enough to unfold the intricacies of Fulani production patterns and local politics in the field.

Studying processes of social change in a relatively narrow time perspective, as I have done, involves a number of uncomfortable methodological problems:

"Can change be seen in field work and can fieldwork be done with a historical attitude even when there are no historical records?" asks Sally Falk Moore and continues with a number of pertinent but also equally disturbing questions: "How does one study how a transformational sequence is generated over time", "how does one study social change as change-in-the-making, i.e. as a historical process in constant movement ?" And finally, " how does one distinguish the transitory from the durable, cultural change from persistence and how can one generalize from the local and time-specific, from the "small history" to a social and cultural totality (Moore, 1994:371, 1987:727).

Drawing on historical records is of course important as it is good to know as much as possible about how the past came into being and what type of sequences of transformation came into being before the present acquired its shape (Moore, 1994:371). Without such information many relatively recent practices may appear utterly 'traditional' to the outsider, as was shown in Hobsbawm and Rangers path-breaking volume: "The Invention of Tradition" (Hobsbawm et al. 1983). But as the traditional lived in the present no longer is the same object as it was in the lived-in past, little is gained if the social facts collected during fieldwork are categorized in two different conceptual bins, according to whether they are old or new, traditional or modern. Rather, there is a fair chance that any evidence of change is lost (Moore, 1994:371). As the object of dynamic analysis is how the transformational sequence is generated over time, one cannot, as stressed by Moore, content oneself simply with an historical account in which fieldwork is presented as the

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Barrals works give hints to the pre-drought tenure and resource management systems of the area.

[21]This tendency to omit the interior part of the country is also the case in newer biographies on Senegal's recent economic and political development such as Momar Coumba Diop's "Sénégal; Trajectoires d'un Etat", Dakar 1992, or Maktar Diouf's "Sénégal, les ethnies et la Nation" UNRISD, 1994.

terminal point. It is crucial to conceive of the present as a time from which the next moment will emerge.

Moore proposes that we adopt a time-oriented perspective on both continuity and change, by studying events as part of a processual analysis, a process perspective. This perspective is in contrast to the idea of a received order that is then changed (the crisis/disruption perspective mentioned above). The analytical emphasis here is on continuous production and construction without differentiating between repetition and innovation. (Moore, 1987:729).

Obviously, traditional field work - in-depth interviews etc. - is important for obtaining a general comprehension of the setting. But in consequence of discarting the unilineal development view, the focus is more directed towards peoples' practices, situations and events. So it becomes crucial to adopt a field methodology that is open towards, and can capture, the unexpected and unintended.

Events have, according to Moore, the advantage of taking place at a particular moment in a time stream, giving them a different standing from those forms of data that present themselves as being timeless. This provides the data with a sort of purity as spontaneous local information, in contrast to the interview material elicited and generated directly by the researcher. Events as data comprise both observed and recounted events as well as peoples' reactions to them. The action and reaction is locally constituted and locally produced. Most important, however, is that events often involve a number of persons, who are so to speak situated at the crossroads, where many different interests and visions intersect. It is precisely in these intersections that evidence of change may be identified. In the words of Sally Falk Moore:

> *"Events situate people in an unedited and pre-analyzed context, before the cultural ideas they carry and the strategies they employ are extracted and subjected to the radical reorganization and the hygienic order of the anthropologists analytical purpose. They contain the possibility of learning something new".* (Moore, 1994:365)

While unfolding an event, the locus of certain struggles of control over the future, may be identified. Because the people involved are acutely aware of the ways in which they want to shape their future, things that were formerly veiled may become visible as part of a sequence. In this way a processual approach conceptualizes the present as an emerging moment, and is concerned with the present as a point in time from which the next moment will emerge.

Obviously not all events have the same explanatory value. Some events have diagnostic qualities and contribute to identify political and economic change by eliciting the interests and strategies

of particular social groups. Others may be termed "articulated" events since they reveal the locus of different political interests (ibid.). As stressed by Lund (1994:13), diagnostic events are obviously not generalizable in themselves, but give hints to certain patterns of processes that should be looked for.

Returning to the issue of resilience versus change, it seems that many cases contain part of both. Larger processes are made up of smaller processes and these processes, often seemingly separate, interact and spill over into one another. Accordingly the choice of unit of analysis and time perspective will tend to be crucial for whether continuity or transitory features predominate in the explanation of a particular sequence (Lund, 1994:15).

In the interpretation of my case material I have used the notion of 'event' in two slightly different ways. In unraveling the immediate effects of drought-related migration on the production systems of the Ferlo in chapter 4, I have described the droughts of the 1970s and early 1980s as *watershed events*. In contrast to this, the disentaglement in chapter 5 of the political processes of adjusting the political and social institutions to new emerging order which followed the 'watershed' has been treated as *events of articulation.*

As will be argued, the severe droughts of 1972/73 and 1983/84 brought about profound transformations of the herd management systems as well as of the social relations. Hence, the two situations, 'before' and 'after' the drought were, by any standard, highly dissimilar. In chapter 4, the drought and the consequent migration will therefore be perceived as the events which form the backcloth for the analysis of the changes in the production systems that ensued. Although process-oriented, in the sense that the open ended perspective hopefully prevails, the concrete disentaglement of the logic of the new range management systems put into work by the newcomers is based on more ' traditional' fieldwork. It is a combination of in-depth interviews and more quantitative research methods involving questionnaire survey and collection of statistical data. This is in contrast to chapter 5, where the political struggles and social manoeuvring are described. Here the role of events, understood as local strife or conflicts or just 'events' are far more central.

Albeit more inclined towards qualitative research methods, this oscillation between quantative research and in-depth interviews proved very fruitful. In fact my initial interest in FuutankoBe herding strategies was triggered by a mapping exercise carried out in 1991while I was working at the Centre de Suivi Ecologique (CSE). With a compass and the trip controller of the car I managed to map the differences in settlement strategies between livestock-rich and less livestock-rich agro-pastoralists. This proved largely to coincide with the distribution between firstcomers and newcomers. This material, together with data on the pastoral production systems collected during the three years were I worked as a sociologist at the CSE in Dakar, provided a good

starting point to concentrate more specifically on the FuutankoBe herders and their insertion in the production systems of Southern Ferlo. During the fieldtrips which followed (between february 1993 and april 1995) I mainly concentrated on in-depth interviews with newcomers and firstcomers, state administrators at different levels, as well as members of the rural councils and the well-comittees. Motivated by Christian Santoir from ORSTOM, who insisted on the need to get a more exact picture of the actual dimension of the post-drought migration, I also carried out a rudimentary census on population and livestock populations around the 7 wells most favoured by FuutankoBe migrants in 1994. Finally, my assistant conducted a questionnaire survey on migration patterns among 53 households in April 1995.

In general, Sara Berry's proposition that we trace peoples' movements through interviews and observation, as a means of understanding the porousness and flexibility of social and spatial boundaries has been an important source of inspiration. In my own attempt to trace herders movements, I have particularly focused on the opportunities and obstacles faced by herders in their movements and settlements. Following my informants as they travelled from one place to another enabled me to gain insight into the ways in which they organized their diversified patterns of income generation, the labour requirements of the alternating production strategies and how social networks were established and maintained across space and time. In certain cases I have also visited family members remaining in the area of origin in order to grasp the diversity of outcomes from the post-drought situation. Many hours have been spent on bumpy and curved dirt roads in order to join informants who had suddenly moved to new grazing grounds up to 100 km away from their original camp. Here, the precision by which neighbours could inform us of the whereabouts of our informants also gave a good impression of the effectiveness of *"radio-brousse-sans-fil*[22]*"*. This information is not incorporated in its entirity in this study, but has provided important background material for understanding strategies pursued by the various herders.

In many ways my research method has been as opportunistic as the herding strategies employed by my informants. Often it has been more or less by accident that I have learnt about certain conflicts which later proved very informative. In general, people in the bush are not eager to recount their conflicting relations to strangers. But my interpreter and I finally acquired some fame as the odd couple crossing through the Ferlo that people became more willing to reveal their knowledge and opinions on local controversies. Consequently our itinerary has often been changed in order to examine more closely certain events and phenomena.

In the course of my fieldwork I became increasingly aware that conflicts related to management of local resources were, in many cases, less associated with competition on access to resources than with competition over political and economic resources generated by the new situation. These

[22] "Wire-less bush radio", i.e. rumours.

are the issues discussed mainly in chapter 5. In order to unravel these intricacies, I realized the need to concentrate on events and conflicts to understand the strategies and motivation as well as the contraints and possibilities faced by the diferent parties to a conflict.

Many of the insights I have gained during my fieldwork on pastoral mobility have been sparked off by such events - whether small or big. In several cases events have contributed to modify stereotypes of power relations that I had acquired through my initial interviews. Such a stereotypes is that of the politically well-organized sedentary herders as being powerful vis-à-vis the migrating and therefore marginalized newcomers.This static picture of the relationship between sedentary and migrants obviously did not explain why the migrants, who were becoming progressively richer and more well established, apparently endured a situation of political subordination. It gave few hints as to the room for manoeuvre possessed by the newcomers. Hence, it was primarily the insights acquired by looking at events which enabled me to look into the unconventional and illicit ways of gaining control over resources.

Furthermore, departing from the unfolding of concrete events also helped overcome problems of discussing future strategies with opportunistic herders who for obvious reasons found such hypothetical interrogation thoroughly nonsensical. The actions and reactions of the various actors engaged in a certain event or sequence provided a far more useful platform for discussing the various strategies and tactics deployed as well as the resources that the individual actors could dispose of.

Finally, I have not had the opportunity of carrying out a long unbroken period of fieldwork. Such an continual stay would obviously have permitted me to follow the evolution of local conflicts in a far more thorough and first-hand manner. Nevertheless, the many but shorter trips that I have made to the region over a period of 7 years have enabled me to observe changes in institutions and practices and to discuss these changes with my respondents. In this way I have been able to trace at least some of the more subtle changes in the arrangements of social activity over time.

This flexible attitude turned out to be an important means of gaining insight into the ways in which social relations, which are under continual construction, reconstruction and adaptation to the current situation. It also enabled me to grasp the meanings that people attribute to rules, regulations etc.

Methodological queries:

To evaluate whether the events observed and the processes of which they were part should be characterized as sequences of reproduction or as processes of changes - and whether such changes are replicable - is yet another problem.

I have had the opportunity of coming back to my field area on several occasions during the period 1988 to 1995. I enabled me to observe many signs of the rapid growth of the local economy: The dramatic increase in the number of small hastily constructed shops in the central villages and in tiny settlements, the upsurge and increasing importance of the itinerant weekly markets, etc. But first and foremost I have been alble to observethe growing wealth and general well-being of my respondents -the fruit of very hard labor and successful economic calculation.

Nevertheless, I have relatively few tangible indications to display of the wonderful success story that I claim is taking place among herders in northern Senegal. Being neither a veterinarian nor a botanist my capabilities for making an independent assessment as to whether or not rangelands are degrading is limited. Nor have I the experience to evaluate more thoroughly the herding skills of my respondents. Hence I have had to accept statements given by my respondents regarding the development of the quality of the pastures, accepting that when neither newcomers nor first-comers regarded degradation or overgrazing as a pressing issue, the acuteness of the problem was likely to be limited. Where it has been possible I have, nonetheless, incorporated available data on range development[23] and herd structures. But, as I have discussed elsewhere,[24] data on livestock numbers and herd size is notoriously erroneous, and must be used with great caution.

Evaluating peoples' level of wealth is equally an issue apt to give the researcher a headache. As I have normally stayed overnight with those families that have been my primary sources of information, and whose households I have visited regularly over a period of 5 to 7 years, I have been able to observe patterns of expenditures as well as the growing number of animals returning to the paddock at night. On such occasion I have of course tried approximately to estimate the cuurent size/growth of the flocks. Such a method is of course far from conclusive as the estimates had to be made discretely in order not to offend my host. Fortunately, the practice of lending or borrowing of cattle between households well-known in other parts of the Sahel, is highly infrequent in this area. Hence, the estimations are primarily disturbed by those frequent cases in which part of the flock was lost in the bush and had to be traced by the herder in the course of the night. Such assessments could, however, only be made with the 3 or 4 families to whom I had particularly close ties. In order to assess the actual increase in livestock due to the new herding techniques, I have had to rely on the very unreliable statistics of the Direction de l'Elevage of Dakar and a few other sources (this problem will be taken up in chapter 3).

In the early part of my fieldwork I have also tried to look at household expenditures as a means

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[23] Notably the very thorough work carried by Miehe and the staff of the GTZ project in Widou Tingol (see Miehe 1990, Tluczykont et al.1991).

[24] Juul, K.1990 "Animal Counting in Northern Senegal, (Ferlo). Proceeding from the Danish Sahel Workshop.

of assessing differences in standards of living[25]. The interesting result of this tedious work was that the difference in terms of expenditures between households of the various wealth categories was remarkably small. The goods purchased, mainly foodstuff, varied primarily according to the number of household members. Even among the very well-off families, very few luxury items figured in the (declared) budget. This may be explained partly by a mobile and risk prone lifestyle where the amount of luggage is kept to a minimum and where luxury habits are restrained as the risk of drought, disease and destitution are ever present prospects. Nonetheless peoples' abilities to invest in donkey carts, expensive tarpaulins and even the digging of wells etc. may be considered as reliable indicators of, at least, some herders' ability to make a substantial surplus. With respect to whether the events unfolding locally in Ferlo villages may be generalized on a larger scale, I shall not conceal that a certain uneasiness crept over me as I pored over the thorough study by de Bruijn and van Dijk on insecurity among FulBe agro-pastoralists in Central Mali. Although they draw on much of the same theoretical inputs as I do, the conclusions drawn are quite dissimilar[26]. Framing their research as a study of insecurity, they infer that the situation is "an example of economic, social and moral disintegration in a context of unremitting decline of ecological, economic and political conditions" (de Bruijn and van Dijk, 1995:500). This is pretty much the exact opposite of my own conclusions from Ferlo.

Evidently, these discrepancies may to a large extent be attributed to differences of context. Mali was far harder hit by the droughts of the seventies and eighties than Senegal was and the hierarchical structure of FulBe society in Mali might have been less adaptive to the post drought conditions than the less stratified system of the Senegalese Fulanis. Furthermore, de Bruijn and van Dijk did their fieldwork between 1990 and 1992 when recovery from the devastating drought of 1983-84 had only begun. Finally, drought recovery in Mali was, and continues to be, severely hampered by the conditions produced by the Twareg rebellion.

But is my own work just a post-modern happy-go-lucky account from an area where those who were victims of the effects of development are simply being overlooked?

The evaluation of just how devastating the effects of the drought actually were in Senegal poses serious methodological problems. First of all it is impossible to get an accurate picture of the individual herd sizes before, during and after the drought. Indeed, the temptation for herders to glorify their past is too great for the answer to be attributed more than anecdotic value. Secondly, those who might have been identified as victims are most likely simply to be no longer present in the area as it is difficult to survive in the pastoral area without animals. Interrogating those

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[25] K.Juul, 1990: "Notes sur les Stratégies des Eleveurs" Unpublished draft, CSE, Dakar.

[26] My impressions stem from reading their introduction and conclusion. I have not had the occasion of reading the entire dissertation of 540 pages.

households remaining in the Ferlo about destitute kin mainly resulted in vague and evasive answers as it is considered improper to discuss the unfortunate situation of others[27]. Having already trespassed on FulBe perceptions of proper conduct on several other counts in my presumptuous questionning into private affairs, I gave up. In fact, the core of my research was rather to show that a large majority of herders had been able to recover successfully, than to postulate that this was valid for the entire population. Fortunately my general impression that post-drought recovery has been smooth and successful for the majority of herders has been confirmed by other studies, such as Thébaud,1995; Richter,1991; Touré,1991 and Santoir,1994.

Another question is to which extent my findings are generalizable and representative, even within the boundaries of the Ferlo. Rather than attempting to unveil general mechanisms and the regularities of common patterns, I have concentrated on finding out how a process works in a limited number of cases, pointing to some of the ways in which change is produced in agro-pastoral societies. This corresponds to what Sayer calls an intensive research design (Sayer, 1984:242). Drawing on conflicts and events as essential parts of my data material, the focus has been on the extreme and 'information-rich' cases rather than on examining the average case. Likewise, I have made relatively few attempts to ensure any representativeness in the choice of informants.

Obviously my selection and interpretation of events and information has been coloured by my initial hypotheses and perceptions, which although somewhat moderated in the course of the research, have remained valid and relevant to understanding the often contradictory findings of my fieldwork. The result is of course an indisputable subjectivity of interpretation.

Outline of the dissertation:

The thesis is organised in two parts. One is mainly concerned with the ideas, ideologies and theories governing natural resource management. The other deals with events as they have unfolded in the Ferlo region.

The first part (chapters 2 and 3) discusses what is considered conventional wisdom on land degradation and its causes and the institutional arrangements neccessary to resolve the problems. The limitations and shortcomings of these widely applied theoretical frameworks are discussed, as are the reasons for their longstanding popularity. On the basis of this an alternative framework more capable of apprehending the intricate and often contradictory processes of post-drought rehabilitation is developed.

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[27] On a few occasion I have met destitute herders living off the backs of their richer kin, but such social ties are to my knowledge not common any longer.

Chapter 2 concentrates on issues related to the physical degradation of the environmental. Here conventional ideas on drought and range management are explored. The chapter tries to unravel the 'technification' and 'de-politicization' of development issues which results from the tendency to focus on biological issues, in terms of 'the balance of nature', rather than on the livelihood and adaptive strategies of the herder population. In order better to capture the variable and innovative ways in which herders of the Ferlo adapt to new conditions, the contours of an alternative framework are developed on the basis of the "non-equilibrium" paradigm. Crucially, this framework recognizes the fundamentally unstable and unpredictable characteristics of the natural environments of African range lands. This approach, which stresses resilience and flexibility, seems more apt to apprehend the multiple and often contradictory processes of post-drought rehabilitation.

Adaptating to new conditions and opportunities also has a political dimension. In the case of the Ferlo this is related to the regulation of access to water and grazing lands. In chapter 3 the influential contributions of the Common Property and Collective Action School concerning institutional arrangement and management of natural resources are discussed. This approach, which is criticized for overplaying community cohesion while downplaying inter group dynamics and social differentiation, is juxtaposed with the contributions grouped under the heading of "negotiated development". Much in line with the above mentioned non-equilibrium approach, this framework recognizes historical change as the unpredictable result of different encounters rather than seing it as a unilineal evolutionary proces. Change is seen as resulting from a variety of factors setting limits while at the same time offering opportunities for development. This stress on openness as far as outcome is concerned hopefully provides a way out of the straight-jacket of the natural resource management framework.

The second part of the dissertation concerns the empirical analysis of the effects of post-drought migration. Here the conceptual analysis and methodology presented in chapter 2 and 3 are confronted with the realities of the Ferlo.

On the basis of the theoretical framework developed in chapter 2, chapter 4 discusses the effects that the influx of a large group of drought ridden herders from the North had on the production systems of the South. This process is analyzed both in terms of constraints and in terms of new opportunities. The changing productive opportunities characterizing the region since the turn of the century are described in order to understand the flexible and opportunistic management systems employed both in the area of departure and in the area of reception. On the basis of surveys concerning unequal herd distribution and diverging herd management strategies, the particularities of the new productions strategies are depicted. So are the interrelations between newcomers and first-comers.

Chapter 5 analyses the processes of the political reception of the FuutankoBe herders and their impact on the institutions controlling the crucial resources water and pastures. This is examined on basis of the discussions and hypoteses developed in chapter 3. The emerging changes in rights of acccess and control to these crucial resources are analysed through the uncovering of the often ruthless struggles centrered around the boreholes and not the least representation within the borehole committees. These struggles provide a way of understanding the constant social manoueverings and ongoing debates over political and social identity, often played out in terms of difference and belonging which constitute the core of local politics in the Ferlo.

The chapter is divided into two parts. One concerned mainly with the relations between the herders and the state; the second with the manouevres and strategies undertaken by firstcomers and newcomers, respectively, to adjust their political power to the new situation.

Chapter 6 contains the conclusion.

Chapter 2.

The desertification debate, the Sahel region and the non-equilibrium paradigm.

Chapter 2.
The desertification debate, the Sahel region and the non-equilibrium paradigm

"Man has punished this barren realm, stripping it of trees and bankrupting the soil. Abetted, the desert advances and the region edges towards catastrophe",

Subtitle

National Geographic Aug. 1987

"A new scientific truth does not triumph by convincing its opponents and making them see the light but rather because the opponents eventually die and a new generation grows up that is familiar with it".

Max Planck.

The idea presented in the introduction of drought related migration as a catalyst for technological innovation is in sharp contrast to the generally gloomy picture governing most contributions on recent problems and future prospects for the Sahel region. Few areas of the world have been subject to as much environmental concern as the Sahel, where the public debate has been dominated by powerful notions such as drought, disaster, desertification coloured by pictures of skinny cows in desperate search or tiny stalks of grass in an immense sea of barren land.

Until recently the scientific debate has been dominated by two equally forceful and interrelated perspectives: one, the desertification paradigm, related to range science, and two, the Common Property/Tragedy of the Commons perspective related to land use and range management. Although the first perspective is closely associated to the biological processes of range science and the latter more to human action, to land use and range management, both have dealt with the interface of biological and economic/social processes. Anthropologically derived concepts such as Herskovits' 'Cattle Complex (1926)' have, together with Hardin's 'Tragedy of the Commons' (1968), had considerable influence on biologists' perceptions of desertification. At the same time pictures of deserts advancing at x km a year have impelled range managers and government agencies to rapid action in order to change' the negative impact of man upon nature'.

Since the earliest versions[1] considerable critique has been voiced against these images, but attempts to breach the neo-Malthusian assumptions concerning the relationship between society and environmental change underlying these perceptions have not been very successful. It was not until concerns about land degradation and desertification climaxed during the two large Sahelian drought catastrophes that the critique had any real breakthrough. The breakthrough was, *inter alia*, spurred by a general recognition that most existing blueprint approaches had turned out to be basically unworkable in many settings and had failed to produce satisfactory solutions to the perceived immense problem of desertification. Another factor was the breakthrough in the natural sciences in recognizing turbulence, chaos and unpredictability as the rules governing nature rather than constancy and balance. On the basis of this, the contours of what has been termed a new 'paradigm' in range management theory, the non-equilibrium framework, began to take shape, encouraging a major rethinking of some of the hallowed assumptions of range ecology and range management practice.

The following chapter tries to do three things. It argues that much of what has been presented as conventional wisdom about environmental degradation tends to rest on a number of rather simplified and generalized arguments about how people impact on their environment. It also tries to explain why these arguments, in spite of considerable empirical evidence against them, continue to inform the majority of development plans and programmes (resulting in a remarcable similarity in project designs).Using the desertification debate as the most prominient example, the chapter argues that a proces of depoliticization and technification of environmental problems is taking place, whereby the animals and the grazing environment are in focus rather than the herder. Consequently herders' own production objectives have tended to be ignored and successful local iniatives to adapt to drought and post-drought situation overlooked. Finally, an outline is drawn of what has been termed the "new ecology" or "non-equilibrium theory", as an attempt to establish a framework for understanding the variable and dynamic processes which were observed during fieldwork in the Ferlo. In this way the chapter provides the basic theoretical 'ammunition' for the discusions of what changes post-drought migration has brought to the pastoral production systems in the Ferlo, which will be presented in chapter 4.

Narratives in the environmental debate.

When opening up a discussion as to whether or not post-drought migration and the subsequent increased stocking rates lead to degradation, one inevitably runs into the problem of having to juxtapose an old, worn out and heavily criticized paradigm with its forceful, brand new and still

[1] Bovill (1921) and Stebbing (1935) were among the first to introduce the idea of the encroaching Sahara, while Hardin's tragedy of the commons can be traced back to Aristoteles and the British Enclosure Act.

relatively unchallenged successor. Confronting the field data with the old paradigm in order to proclaim the triumph of the new is liable to produce limited intellectual satisfaction, the result being mainly a replication of critiques already voiced. On the other hand, concentrating entirely on the new theoretical approach might lead to neglect of useful insights into the logics governing most of the policy decisions taken in the field. For while the majority of researchers and even many donor agencies[2] operating in the field of range and resource management agree on the inappropriateness of battered notions such as "The Tragedy of the Commons", "The Cattle Complex", "Desertification" and "Carrying Capacity" etc. the myths nonetheless exhibit considerable perseverance among practitioners, bureaucrats or policy makers and continue, at least partially, to inform policies operating at local and national level.

The appeal of these myths or 'development narratives' as they have been termed by Roe (1991) lies primarily in their simplicity. Because rural development in many parts of the developing world is a genuinely uncertain activity characterized by high degrees of unpredictability, one of the principal ways that planners and policy-makers make sense of this uncertainty is to tell stories and set up scenarios that simplify this uncertainty. According to Roe (1991:288), the more uncertain things seem at the micro-level, the greater the tendency to require broad explanations that can be operationalized into standard approaches with widespread application. This is particularly true of the pastoral sector where planned intervention during the last 30 years has produced little but failure.

Accordingly, simple theorems like the Tragedy of the Commons (discussed in detail below) have provided the practitioner with a model to understand what is going on and what must be done - and continuously do so. More elaborate and demanding analyses are troublesome for the decision maker since they generate rather than reduce uncertainty and raise doubts that the critique itself cannot answer. Thereby the very assumptions of decision making are undermined (Roe 1991:290). As a result the unresolved failure of project blueprints derived from development narratives often serves to reinforce, rather than to lessen, the perceived need for some sort of narrative that accounts for the resulting increase in uncertainty. As will be shown later on, the presumably old fashioned and worn out models have not disappeared, but continue to inform most national development plans. Explaining why and, not the least, how these narratives have persisted in spite of severe criticism and strong empirical evidence against the reasonings that support them therefore seems a valid task.

Roe's definition of development narratives stresses their status as stories or arguments. In contrast to

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[2] For example the German Gesellschaft für Technische Zusammenarbeit (GTZ),the British Overseas Development Agency (ODA),United Nationa Soudano-Sahelian Office (UNSO)and the Danish International Development Agency (DANIDA).

other notions more familiar to the development practitioner, namely ideology, myth and conventional wisdom, they follow the common definition of a story: Each has a beginning, a middle and an end (or premises a conclusion when presented in the form of an argument). They revolve around a sequence of events or positions from which something will happen or from which something follows (Roe 1991:288).

Also Sayer (1992:259-262) stresses the linearity of narratives:

> *"By narrative I mean an account of process or development in terms of a story in which a number of events are depicted chronologically. In everyday life narrative is the taken for granted, natural form of discourse, through which events 'seem to tell themselves'. Its power derives from the way in which putting things in chronological order, in a story, gives the appearance of a causal chain or logic in which each event leads to the conclusion*" (Sayer 1992:259)

According to Sayer this is in contrast to *analysis* which is the explanation of concrete cases by the direct application of abstractions or theoretical models of what are believed to be widely replicated structures and mechanisms. Such analyses tend to abstract from particular historical sequences. Analysis requires a leap across the immediate step between the abstract and the concrete in the hope that the model will serve to identify key processes without too much distortion.

Although narratives may exhibit considerable explanatory power[3], there is a certain danger in their lineal form. For while they may causally explain some events, they are not primarily concerned with explaining the nature, condition and implications of social structure. Hence they tend to gloss over the differences between mere temporal succession and causality. According to Abrams, this entails that they present only implicit, under-examined aetiologies. The principles of explanation underpinning the research are buried beneath the rhetoric of the story (P.Abrams, 1982: 196).

In the present context the aim is not to discuss the validity of narratives explanations versus empirical analysis. What is of interest is rather the perseverance of certain ideas and narrative explanations in development rhetorics i.e. how narratives, in spite of considerable empirical evidence against them, turn into models informing policy-makers and project personnel. For as expressed by Roe: "Even

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[3] Perhaps the most prominent example of narrative explanation is Clifford Geertz' "Deep Play. Notes on a Balinese Cockfight" Daedelus 101 Winter 1972, see also Cohen 1985:63-69.

when their truth value is in question, these narratives persist in having the objective of getting their hearers to believe or do something" (Roe, 1991:288). As will be shown below, narratives in the sense of 'stories which seem to tell themselves' have played a major role in the shaping and the perceptions of development rhetorics about desertification and environmental degradation.

Balance of nature or the equilibrium paradigm.

The narratives which influence contemporary range management policies and practices are all embedded in what (more or less post-mortem) has been termed the equilibrium paradigm.
This paradigm has formed a sort of umbrella for the following mutually interwoven narratives:

- the cattle complex,
- tragedy of the commons,
- the advancing desert.

Fundamental to the 'old' range management approach is the assumption that ecosystems are equilibrial by nature. This conviction draws on Malthus' ideas of populations being regulated by their food supply, through density-dependent feed-back relations. Added to this is Darwin and Wallace's theories of the gradual evolution of species through orderly processes of competition and natural selection. Both assumptions presume that conditions outside the system of interest are relatively stable over time, allowing the internal processes of the system to equilibrate and regulate the system structure and dynamics. This equilibrium approach has been one of the most durable ecological theorems since it was launched on the scientific arena at the end of the eighteenth century (Ellis et al. 1993:31).

Conventional range management theory, which rests on plant succession theories, was developed in North America at the turn of the century; the most celebrated propagators being Cowles (1899) and Clements (1916). According to what was later known as clementsian succession theory a single, persistent vegetation, the climax, would dominate a particular site according to the soil and climate of the site. If the climax vegetation was disturbed, the vegetation could return through a successional sequence to climax. (Behnke and Scoones 1993:2).

In an adapted form this apparently simple logic has been the driving force behind most range - and resource management projects in the Sahel. In principle, the African pastoral ecosystems are seen as stable. Therefore, it is possible to identify a threshold of *carrying capacity*, a balance between the grazing pressure and the natural regenerative power of the plants. Pushed beyond this threshold, this

balance will be destroyed and the condition of the range progressively deteriorate. Ultimately this may lead to desertification.

Restoration of the balance of nature in order to avoid desertification has been, so to say, the point of departure of most range management projects in the Sahel for more than 5 decades.

The narrative of overstocking and overgrazing

According to the mainstream view, desertification was speeded up during the seventies due to a general increase in livestock densities and improper use by pastoralists that destabilized the potentially stable range systems. Throughout the 1960's and 1970's preconditions for desertification had been exacerbated by local inhabitants through land mismanagement, excessive firewood gathering, deforestation and drilling of wells (Glantz 1977:3, Picardi and Seifert 1976:44).
The drought itself was therefore seen primarily as a catalyst which exposed the deleterious effects of long-term degradation by people.Besides unwise cultivation of rangelands the most important role in the on-setting of the desertification process was attributed to overgrazing by domestic animals.

Increase in livestock numbers was attributed to:
a). Increase in the number of pastoralists triggering a demand for more livestock to support the extra pastoralists and a supply of herding labour to look after the extra stock.
b). Improvement of veterinary medicine and services which reduced mortality[4].
c). Traditional and 'irrational' social systems which place a very high social value on the accumulation of livestock numbers rather than on the economic output of the herd or environmental conservation.

According to this view, animal population densities are now far beyond carrying capacity. This results in "progressive reduction of the vegetation cover and increased wind erosion, trampling, sealing, increased run-off, higher water tables and salinity - all mechanisms which feed the desertization process" (Le Houérou, 1977:25). Overstocking is also furthered by the reduction of grazing land through the progressive creeping of cultivation into pastoral areas - despite the low crop expectancies which can be found in such areas. This unproductive and highly risky cropping situation results in the destruction of native fodder species. Instead they are replaced by either annual weeds with little forage value or unpalatable species. Finally desertification is explained by the drilling of boreholes irrespective

[4] Already in 1944 fear of overstocking lead the colonial administration of the Sudan Protectorate to keep vaccination programmes to a minimum as they were supposed to be the major factor behind growth in stock populations. (Adams 1982:271).

of grazing capacities which has lead to the destruction of the pastures within a radius of 15 to 30 km around the boreholes. According to Le Houérou, the end product in most arid zones is a man-made desert strewn with carcasses all over the Sahel (Le Houérou 1977:25-30).

For the range manager the task must therefore be to return these systems to an equilibrial state through an alteration of the system structure by reducing livestock numbers or by changing livestock patterns to be more in accordance with the carrying capacity of the range. Only at this level can a stable sub-climax be established yielding a profitable and steady flow of animal products[5].

Interestingly, the obvious Malthusian tenets of the argument above have also inspired some policy-makers to stress the need to stabilize not only animal but also human population growth in order to alleviate the causes of ecological stress in these generally scarcely populated areas (see for example Lester Brown 1974). Few have, however, gone as far as Garett Hardin, who perceives food aid to the drought victims as senseless, as it hinders the population from reaching equilibrium (see Hardin 1977:564).

Although no thorough critique will be offered to this argument at this stage, it may be useful to point to the obvious contradiction between the rather mechanical view offered by Le Houérou - of herds increasing almost automatically in accordance to population increases - and the view offered below of the irrational herder accumulating as much cattle as possible mainly for sentimental reasons.

The Cattle Complex.

The main source of inspiration for the idea of the irrational social values governing traditional herd management stems from the title of Melville Herskovits' article of 1926: "The Cattle Complex in East Africa".

This narrative centers around pastoral conservatism and the presumed lack of economic rationality of African herders. In contrast to the profit-maximizing rancher from Wyoming, herders in Africa accumulate cattle for their own sake rather than for sustenance. As cattle is kept for social purposes as a sign of wealth and prestige their owners display an astonishing lack of interest in exchanging cattle for cash. Hence they are prevented from obtaining the benefits of the cash economy in the form of consumer goods. According to the 'cattle complex' narrative this has led herders in many areas to

[5] For an example of a clearly equilibrial view see for example Lamprey 1983 or Picardi and Seiferts article "The Tragedy of the Commons in the Sahel",1976.

accumulate large herds which include excessive number of steers and bulls as well as old and unproductive females. Numbers are kept in excess of those which the environment can properly support and to a degree inconsistent with ordinary economic rationality. Accordingly only a fundamental change in pastoralists' social values and in their traditional institutions can lead to a more rational emphasis on environmental conservation and material welfare and prevent overgrazing[6].

To attribute these derogatory and value-loaded characteristics of African pastoralists to Melville Herskovits nentheless appear quite unjustified. When reading his original article of 1926, entitled "The East African Cattle Complex", one finds that Herskovits' objective was far from launching a critique of the behavior of African pastoralists. Quite the contrary, his work which is part of a doctorate in philosophy attempted "to demonstrate that the culture of the peoples of East Africa could be grouped together, the most outstanding trait in all their cultures and that most decisive for such classification being the cattle complex" (Herskovits 1926:633). Herskovits used the word "complex" in the sense of "a whole" embracing a number of interconnected or involved parts, a complex and complicated whole.[7] However, posterity has come to use the notion in it's psychological significance, as emotionally charged ideas arising from repressed instincts, fears and desires often resulting in mental abnormity[8] (The Oxford English Dictionary).

It is in the course of his ethnological endeavour that Herskovits describes the cultural importance attributed to cattle in relation to marriage and divorce, burial, inheritance and food custom etc. On the basis of literature studies of a very varied character, he defines some common features in what he calls the cattle complex. The care taken of animals, the affection of their owners for them; how modes and habits of the owners are subordinated to the requirements of their cattle;their importance as the index of their owners' wealth etc. He notes how, for example among the Dinka, every thought is directed to how to get more cattle and how whatever concerned the beasts was important. When an animal became ill it was put aside in a special hut and doctored. To slaughter his cattle was inconceivable to the Mkambawho would neither think of selling a cow even if he was on the verge of starvation" (ibid: 258). Only those that died were used for food. The reason given was: "The

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[6] For a summary of these discussions see for example Sandford 1983:12 and Livingstone 1977:209-210

[7] Herskovits does not explicitly define what he means by complex. However he refers , critically, to the German "Graebnerian school " "kulturkreis" notion as "conceived as an area wherein there prevails a given culture-complex, - where all the elements of this complex are to be found in the most, approximately, pure form" (Herskovits 1926:231)

[8] For example Henriksen 1974 , although critical of the notions in several ways, writes: "There can be no doubt that the Turkana have a cattle complex in the sense that their herds have a special social and ritual value". (Henriksen 1974:17-18)

owner of the cattle knows his animals individually and loves them" (ibid.:259)

Another trait identified by Herskovits, is the connection between cattle wealth and social position in the community (ibid.:265). Among the Nuer, for example, wealth is judged entirely by the number of sheep and cattle a man possesses. Theft of cattle is often found to be the source of bitter conflicts and feuds (ibid.:257) Cattle are kept for pride and as a sign of wealth and prestige and are bred for milk and butter (ibid.:255).

In conclusion, the presence of cattle impresses itself as of primary importance and the part they play in the occasions of crisis in the life of their master show their importance for an understanding of the culture of these people. Young men must serve their time herding the chiefs cattle before they can be circumcised or married and the cattle dowry common to all cattle keeping peoples in East Africa is tranferred before marriage (ibid:268). In fact the attachment to animals can be so great as is the case among the Baheru of Uganda where "cases are not wanting in which men have committed suicide through excessive grief at the loss of an animal" (Herskovits 1926:263) Others, like the Batonga living along the Zambesi, knock out their front teeth, giving as a reason that their object is to be like oxen and those that retain their teeth they consider as zebras". (ibid.:268).

Not least the last parts of Herskovits account display an understandable fascination and amazement with these peoples that he has not himself visited. Indeed it is difficult not to admire the relative absence of prejudice in his descriptions. It is therefore ironic that the notion of pastoral economic "irrationality"which continues to have currency as a justification for development interventions is attributed uncritically to Herskovits.

The case provides an interesting insight into the ways in which forceful narrative such as "the cattle complex" may be constructed by emptying, so to say, the argument of its original content. Taken out of its original context and through the mere power of its linguistic features the relatively neutral notion of complex, used by Herskovits in the sense of complexity, has been transformed into its value-loaded homonym, "to have a complex", with all its connotations of mental illness.

Throughout the years severe criticism has been launched against this narrative and its perception of pastoralists as economic irrational peoples. Critiques have mainly come from anthropologists, (see for example Dahl and Hjort 1974) who have contemplated the differences in rationality between African and 'Western' herdsmen. African herdsmen attribute more value to the pastoral by-products such as milk, calves, blood reason for which they keep large herds as part of a strategy of subsistence or risk-avoidance. Other studies have revealed that if one focuses on herding as a balance between risk and

reward instead of focusing on overstocking as a store of value, it turns out that livestock herders are just as profit-maximizing as the afore mentioned 'Wyoming rancher'. This point was made most clearly by Sandford 1983 who showed that less conservative stocking rates are more efficient even if this leads to die-offs in bad years because it allows the benefits of good years in terms of grazing which cannot be "carried over" from one year to anotherto be captured (Sandford, 1983:67). Finally, the original reasoning of Herskovits with regard to the centrality of cattle in social transactions (bridewealth) as well as their salience as political currency has been rehabilitated by researchers such as Comaroff and Comaroff (1992) and Kuper (1982). Notably the Comaroffs have tried to look afresh on the role of cattle in social processes by understanding its significance in the way it links processes of production and exchange, the embodiment of an order of meanings and relations and its capacity through its circulation to reproduce a total social system (Comaroff and Comaroff 1992:128). According to them cattle in precolonial African societies should be understood not merely as commodities in the strict sense of the word but as commodities in the sense of transformation, in a total economy of signs and practices, between the material economy of things and the moral economy of persons (ibid.).

Nonetheless, the idea of the immense 'social constraints' hindering the successful application of technical solutions in terms of controlled stocking rates and desertification control lingers on in many quarters. This is illustrated by the general and overwhelming concern with control and stabilization of livestock numbers (see for example the infuential article by Picardi and Seifert 1976). Because of the idea inherent in the narrative of cattle being kept in the herd far too long - imposing an unproductive and unnecessary pressure on the grazing lands - many livestock projects throughout Africa have tried to bring about greater stratification of livestock management by trying to persuade herders to sell their animals (mainly steers) at a young age to specialist fatteners. In the Ferlo region this approach is represented by the Senegalese livestock para-statal SODESP. Other projects in the Ferlo, such as the 'Projet Senegalo Allemand', have had as a major ambition to teach herders that a limited but healthy herd was more productive and rational than the traditional herd-maximizing strategy. This project model also drew heavily on the next development narrative, the Tragedy of the Commons.

The metaphor of the Tragedy of the Commons,

The mataphor of the Tragedy of the Commons was presented in its most famous (or notorious) form by Garett Hardin in 1968 who turned it into "the dominant framework within which social scientists portray environmental and resource issues" (Godwin and Shepard 1979:265). Its popularity can mainly be attributed to Hardins insistence on the presumably irreconcilable contradiction between

individual and system, which reflects a common intellectual tradition in the English speaking world about common property and individual interest. This debate can be traced back both to disputes on the English pastoral commons of the eighteenth century and as far back as to Aristoteles who pleaded: 'that which is common to the greatest number has the least care bestowed to it".

Going back to Hardin's original article, however, one finds that, as with Herskovits' cattle complex, the narrative so well known to us all is more linked to the title of the article than to its actual content. Hardin's original preoccupation was not that of range management but rather 'the population problem'.The scope of the article was a critique of the dominant tendency of thought which, inspired by Adam Smiths' invisible hand', assumes that decisions taken individually will be the best decisions for the entire society; a policy which, according to Hardin, "justifies our present policy of laissez-faire in reproduction (Hardin 1968:1244). The metaphor of the herders in the commons was used only as an illustration of a general concern over problems which according to Hardin had no technical solution. "No technical solution", he concludes, "can rescue us from the misery of overpopulation. Freedom to breed will bring ruin to all" (ibid: 1248).

Hardin's source for the allegory of the pastoral commons was an early nineteenth century political debater, William Lloyd, who was engaged in the debate on population, labour and the Poor Laws and at the same time one of the propagandists of parliamentary enclosure (McCay and Aacheson, 1987:2). In an analogy between the pastoral commons in old England and the labour market, which supported Malthus' pessimistic views on population, Lloyd deplored the freely obtainable - common rights- to enter both the labour market and the pastoral commons, which inevitably would lead to overstocking of pastures and oversaturation of labour markets, causing respectively resource depletion, low wages and miseries to the labouring classes.

Hardin's argument, which combines Lloyds images of English Commons with the language of economic marginal utility is the following:

"Picture a pasture open to all... "he starts and ventures into an argument on the behavior of "the rational herdsman" grazing his animals on a pasture that he uses in common with other herdsmen. In spite of signs of overgrazing the herder will continue to add new animals since the effects of overgrazing is thus shared by all, while he receives the full benefit from the production of extra animals.

> *"..but this is the conclusion reached by each and every rational herdsman. Therein lies the tragedy. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination to which all men*

rush, each pursuing his own best interest in a society that believes in the freedom in the commons. Freedom in a commons brings ruin for all" (Hardin, 1968:1244).

The tragedy in Hardin's version is thus both economic and environmental. It is in no-one's long term interest but is nonetheless inevitable unless something is done to intervene in the management of the commons; eventually by changing tenure from common property into private property. According to the model it is unlikely that the users will change the system themselves.

While Hardin's argument on overpopulation would seem utterly unpalatable to most people[9], his model of the immutable logic of individual self-interest has been lauded throughout the world. The Tragedy of the Commons model presents all the disarming simplicity required for a development narrative, furnishing the practitioner with a combined diagnosis and prescription. For as noted by McCay and Aacheson (1987:5) the popularity of the model lies not the least, in its ability to yield both liberal and conservative solutions. Cleansed of Hardin original intentions the model may be used as an argument both for more state intervention to regulate problems of population or environment. It is, however, equally forceful as an argument for privatization of resources and for governments to leave management of local resources to individuals and the private sector.

But the tragedy of the commons is a model and as such abstract and simplified. As a result even many people who agree with Hardin that range degradation is taking place and the commons today are a free-for-all, feel obliged to part with him over cause. A number of have pointed to the failure of Hardin to distinguish between common property as a theoretical condition in which there are no relevant institutions (open access) and common property as a social institution (the commons)" in which a number of owners are co-equal in their rights to use the resources" (Cyriacy-Wanthrup and Bishop, 1975:714; Bromley and Cernea, 1989)[10]. In Hardin's argument common property is the same as open access. But common property is not everybody's property and many commons, it is argued, were in fact managed in a restricted fashion until exogenous pressure undermined local management efforts (see for example Bromley and Cernea, 1989:17).

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[9] He goes as far as to dismiss the Universal Declaration of Human Rights:" To couple the concept of freedom to breed with the belief that everyone born has an equal right to the commons is to lock the world in a tragic course of action. Unfortunately this is just the course of action that is being pursued by the United Nations" he writes referring to the 1967 declaration which stipulates that any choice with regard to the size of the family must irrevocably rest with the family itself. (Hardin, 1968:1246). See also his critique of well-meant famine relief "in a world of irresponsible reproduction" (Hardin, 1977:565 "Living in a lifeboat").

[10] This argument will be developed further in the next chapter.

Others have directed their critique towards the individualistic bias of the model and the predominance of game theory which underlies many interpretations of the individualistic and self-interested user of the common. Runge (1981:595) for example, stresses the interdependence of decisions among users and the need for "assurance mechanisms" among users to limit the effects of uncertainty. Users do cooperate, he argues. Institutions and rules are therefore not external and imposed on the individual users, rather they are responses to the uncertainty of social and economic interaction. The tendency of Hardin's model to restrict solutions to external authority (state or privatization) has therefore been criticized for neglecting the potentials of other solutions such as those offered through management by local community or local user groups (Anderson and Hill, 1977 and Ostrom, 1977).

Focusing on local ability to resolve problems related to resource management has, nonetheless, often incured a tendency to assume that community entails solidarity, cooperation, homogeneity and collective action. Often such views are blended with a certain degree of mythologization of indigenous people as being 'real' ecologists or conservationists as long as they are isolated or protected from commercialization, state intervention etc. This point will be taken up in chapter 3.

Contrary to the Cattle Complex narrative, the Tragedy of the Commons as a narrative preserves Hardin's original perception of the herdsman as economically rational. In the course of its transformation into a narrative certain adjustments have nonetheless occurred. Hardin does not, for example, say that commons cannot be managed. In fact he recognizes his error of mixing common property with open access in a later paper (Hardin 1991) and admits that the title of his paper should have been "The Tragedy of the *Unmanaged* Commons". But as stressed by Peters (1994239), ideas are not always in the control of their makers and its revision has not received the same attention as the original version which continues to inform range policies in large parts of the world.

In reality none of the above mentionned criticisms part fundammentally with the "old" resource management paradigm. They do not challenge the ideas that rangelands are being degraded through overstocking nor do they question the presumed imperative to increase territoriality and rights of controlling the behavior of outsiders through institutional arrangements based on exclusivity. None of them address fundamental issues related to the dynamics of and competition between different social groups located in history and social systems of conflicts and competitions between users over scarce resources. Rather, they tend to reduce history to unilineal shifts and to ignore the contingent and indeterminate character of social institutions (Peters 1987:177). These are, however, all issues which will be taken up in the next chapter.

From narratives to standard specifications.

In the context of the desertification debate, it has been interesting to observe how certain terse expressions or terms such as the cattle complex or the tragedy of the commons have become almost standard specifications, while few of the propagators or critics have read the original article or sought to understand it within its original framework. This is particularly with case of Herskovits, criticized on somewhat unjustified grounds by for example Sandford (1983:15). But, to use Andersons expression: "the genie was let out of the bottle all the same, and the ghost of the 'cattle complex' paradigm has lingered on, not the least in the writings on development and pastoralism" (Anderson, 1993:124).

It is obviously difficult to trace the ways in which these transformations take place. Elaborations on Herskovits' original concepts in articles such as 'Pokot resistance to change' by the anthropologist Harold K.Schneider (1959), obviously added fuel to the idea of pastoral conservatism through its emphatic title[11]. Nonetheless, over the years, the amount of literature has increased exponentially, and still fewer policy makers and even fewer extension workers are informed directly by anthropological or other scientific literature. By far the largest amount of information and interpretations are diffused through so-called grey literature in the form of project documents and short term evaluations based on relatively short term studies. Such literature is often characterized by its conformity with already existing images of problems related to the environment and pastoral society and therefore serves as good hunting ground for development narratives[12]. It is therefore not surprising when Lane (1990:16) recollects his encounter with a government official in Tanzania in 1989 who almost verbatim expresses the tragedy of the commons thesis[13]. Nor is it astonishing that the ideas of the ineffective or irrational herder so often are being replicated in government programmes or in the discourse of government

[11] Schneider has also to some degree suffered from a biased lecture. In order to explain the marked resistance to European innovations among Nilotic peoples in contrast to the apparent receptivity of their Bantu neighbours interesting explanations are given to the failure of colonial attempts to promote sale and export of cattle to other areas. According to Schneider, Pokot objected to selling their cattle to foreigners because of their mutual long term obligations to help and support each other. This was secured through cattle sharing and trade but would be lost in outright sale (Schneider, 1959:155)

[12] See for example; Conseil Interministeriel sur l'Elevage, Rapport présenté par Monsieur Robert Sagna, Ministre d'Etat, Ministre de l'Agriculture , Dakar août 1993., Plan D'action de l' elevage, Ministére du Developpement Rural et de L'Hydraulique, Dakar nov. 1992, or no. 35 mars 1988, notably the interview with Ibrahima Diemé, Directeur de l'Elevage.

[13] I have experienced similar situations several times during my own fieldwork where extension officers despite contrasting evidence experienced in the field suddenly have switched to uncritical reproduction of the Tragedy of the Commons thesis.

officials or even, as is the case of Botswana, the thesis of the tragedy of the commons becomes enshrined in national livestock policy (Peters 1987:173).

The use of narratives is, nonetheless, not confined to development practitionners and policymakers. In spite of their simplification, narratives are often incorporated in the discourses of the local population as part of calcutated interpretation of reality. The rhetoric of destruction of the commons through overgrazing by individual herders may be used by herders as a part of their own political struggle to gain control over key resources such as watering holes or grazing lands. As will be shown in the chapter 5, these rhetorics are as integral a part of the political gamble in pastoral Senegal as they have been in the process of privatization of boreholes in Botswana. In the latter case, the Tswana elite, in their own push to develop private rights in the grazing areas in the 1930's, showed themselves adept at taking on the mode of discourse of the colonial administration. Peters (1994:64) cites the following example: In connection with the initiation of the borehole syndicate schemes in Kgatleng in 1943, the Tswana chief Sefhako Pilane explained the advantages of the semi-private borehole syndicate system to the Native Advisory Council:

> *"Where everything is used tribally, no proper care is taken of that thing because any man can come along and use it, well knowing that any expenditure attaching to it he has not to bear alone. But where the (pumping) plant belongs to a syndicate of members... have to take it upon themselves to see if any damage is done... and find out who is responsible".*

The chiefs described the management problems with the new boreholes as deriving from the inability of tribal systems to sanction proper use. In such a way they presented their own tribal or communal system as flawed and as inhibiting economic progress. The interpretation presented was based on a very selective appeal to tradition, a redefinition that was part of a strategy of private appropriation. (Peters 1994:65)

What makes this contribution particularly interesting is the duality of the discourse. As Peters shows, on other occasions the same chiefs saw no problem in arguing that the communal system was not a necessary obstacle to progress: on the contrary, it was held, it was flexible enough to allow for individuals to adopt progressive innovations and promote economic change. The explanation for this apparent contradiction is the dual interest of the elite to maintain open commons as part of their very mobile herd management strategy while at the same time expanding their control over private or privatized lands.(Peters 1994:67) This stress upon the duality of interests, which will be taken up further on in the dissertation, introduces a struggle for power perspective which is virtually absent in

the above mentioned narratives.

Depoliticizing environmental change; the desertification narrative.

Development narratives such as the cattle complex, the tragedy of the commons and the desertification menace all hint at the close kinship existing between environmental concerns and Malthusian economics: The more people there are the more they destroy the long term potentials of fragile environments and the poorer it makes them and their descendants. Consequently, many aid inventions are based on the premise that the African environment is under immediate threat from overuse and that open access and communal tenure exacerbated by population growth prevents a change towards more productive and less damaging patterns of use, i.e. sustainable development.

The ostensible need for urgent action is among other things the result of an undue weight which is given to recent changes in areas unfamiliar to the observer. This was particularly the case with the large Sahelian drought in the beginning of the seventies. The enormous media coverage contributed to transform the drought into what Morton has termed 'the epochal change' in relation to which everything that happened in the region could be explained. What happened before the drought was labelled 'traditional' as if unchanged since Noah's flood, while recent changes are considered to be the first changes in centuries.

As a result "a series of gloomy analyses marked by apocalyptic interpretations of what happened and correspondingly radical predictions of what would have to be done if disaster is to be averted" (Morton 1994:60) was produced.

But in fact, the processes described as the global desertification threat in the seventies and eighties are not so novel as is often assumed. Already in the nineteenth and early twentieth century theories of progressive desiccation of the African continent were proposed by explorers such as David Livingstone (1857). By 1932 grandiose schemes were introduced to divert rivers and flood depressions in order to reverse the threat of ever worsening droughts (Thomas and Middleton 1994:19). By the turn of the century, these environmental concerns had merged into a picture which was to have long-lasting effect on western scientific thinking, the idea of the encroaching Sahara. The Sahara was said to be encroaching southward onto the Sudan zone along its entire southern front, leading to wells drying up, lake levels falling, pastures being depleted and trees dying (see for example Stebbing 1935 and Bovill 1921)). Alarmed by what Stebbing alluded to as 'the threat to the West African colonies' the French and British colonial offices sent off a Anglo- French Forestry commission in the late 1930's to conduct field investigations into the problem.

Ever since, doomsday trumpets have sounded regularly to prophecy forthcoming or ongoing environmental degradation. Tiffen et al. (1994) make references to the serious concern among the colonial administrators already in the 1930's to arrest the cycle of degradation observed in the Machakos district of Kenya. In northern Senegal, colonial administrators voiced their concern for the accelerated felling of trees along the Senegal River allready from the middle of the 18th century (Bernard, 1993:49) and by 1920 several afforestation projects had been launched on both sides of the Valley. When the French forester Aubreville introduced the notion of desertification in 1949[14] it therefore fell on fertile ground.

Also the relation between degradation and overstocking is an old one[15]. Even the contemporary problems related to imposing more sustainable management practices on local users were experienced in earlier periods, as may be seen in Schneider's description of the struggles of the colonial authorities in Kenya to limit stock size and preserve the environment among the Pakot:

> *"The Pakot argue that the government exaggerates the problem of erosion; even though there are large patches of exposed red earth on the plains, they maintain that the area has always been that way. They regard government officials as perennial pessimists who constantly complain that the land is washed into the rivers, and they ignore these warnings because their cattle continue to be fat and sleek."* (Schneider, 1959:156)

But apparently nothing is new under the sun. As Morton suggests, the impact of recent events although they may overawe the outsider often seem less devastating in the longer perspective. But if this is so, then how come that environmental concerns suddenly in the mid seventies turned into the major global environmental issue perceived to threaten not only the drought-ridden Sahelian countries but also the more developed economies of USA, USSR and Australia?

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[14] Aubreville actually referred to the creation of desert-like conditions in humid parts of West Africa (notably Côte d'Ivoire), in his contribution: "Climats, forêts et desertification de l'Afrique Tropicale". Later on the concept has primarily been used as a characteristic of "the extension of desertlike conditions in arid and semi-arid areas (up to 600 mm)due to man's influence or to climatic change" (this definition by Rapp in 1974 was later adopted by UNEP (Glantz, 1977:2)).

[15] In the Bechuanaland Protectorate, the fear of uncontrolled grazing and degradation of the range that emerged in the 1930's in relation to the first drilling of boreholes mounted steadily in the succeeding decades. Experts warned that stock limits might be necessary to prevent damage to the pasture around boreholes and rules were issued ordering chiefs to lay down a maximum number of stock which may be grazed in reach area (Schapera, 1943 cited from Peters, 1994:79). According to Peters this suggestion seems not to have been followed up, possibly for technical reasons. Nevertheless stock limitation were incorporated into all the later borehole schemes.

Among the most obvious explanations, one finds the enormous media-coverage that the drought received, the growing concern for environmental issues in general as well as the fact that environmental issues had gained political credibility in both the left and the right. Far more important, however, was the way in which the issue was institutionalized through the UN system, achieving a level of representation and concern within both the donor community and national governments of the affected countries that no other environmental issue has gained so readily. This institutionalization turned desertification into big business, a politically sensitive and major North/South issue (Thomas and Middleton, 1994:2)

The United Nations interest in drylands dates from the 1950s with the establishment of UNESCO's Arid Zone programme. In 1973 the specific problems related to the Sahel drought lead to the establishment of UNSO (United Nations Sahelian[16] Office), charged with coordinating relief effort in the drought affected areas. Nonetheless, it was the UN conference on desertification (UNCOD) held in Nairobi in 1977 that provided the great watershed. This conference, attended by representatives of 95 countries, 50 UN offices and a myriad of NGO's, opened a new epoch in which the term desertification entered the popular and scientific vocabulary as a representation of a major environmental problem of great importance for the political agenda (Thomas and Middleton, 1994:1 and 3).

By placing desertification as one of the highest priorities on the environmental agenda, the United Nations has, according to Middleton and Thomas, contributed to a politicization of the concept and to the creation of what they call an institutional myth of desertification. Certainly desertification has involved the interest of state elites and donor organizations, but the politicization of the issue has also resulted in the omission of politics from the conceptualization and perception of the problem. Instead of addressing the role that land use policies and agricultural interests play in the desertification process, it has been easier to view the problem in an environmental light. Rather than blaming internal political or social issues, the Sahelian problems could now be presented in an environmental context where politicians from the developing world legitimately could ask for assistance from the developing world[17].

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[16]Later the area of coverage was enlarged and the name changed to UN Sudano-Sahelian Office.

[17]The political potential of the desertification argument could also be used internally as is illustrated by President Kountche's use of the need to fight desertification as an excuse to halt the democratic process in Niger (Thomas and Middleton, 1994: 2)

Desertification became a common word, representing an environmental and social problem of serious dimensions, long before it had the appropriate scientific and social imprimatur. It also turned into what has been called an "ecological taboo", controlling political action on a *prima facie* basis without examination of the context and underlying issues (Middleton and Thomas, 1994:99).

An obvious result of this taboo - which was aided, not the least, by the enormous amounts of aid money flowing within desertification circuits - was a limited interest in exploring and questioning the (social) content of the concept, and instead focus on technical solutions and blueprint approaches which to a large extent were informed by the above mentioned narratives.

From the outset, it was presumed that the technology was available to bring desertification under control. Therefore the agenda of the UN Plan of Action (1977) was to 'bring a halt to desertification before year 2000'. In fact, the delegates at the UNCOD conference were told to accept the existing level of knowledge as adequate for establishing a Plan of Action as their task lay in the immediate adaptation and application of existing knowledge (UNCOD 1977, cited from Spooner 1982:5)[18]

Research and data collection has generally focused on ecological explanations and technical solutions, operating almost exclusively with biological rather than with social indicators. UNEP's anti-desertification efforts did not shed much light on the problem, dominated as it was by attempts to present data on the sheer magnitude of the problem. In fact, the acknowledged limitation of available data - together with serious doubts as to how to conceptualize desertification - ensured that mapping the extent of desertification never could be characterized as more than an educated guess. And consequently figures assessing the global extent and effect of desertification often varied tremendously[19]. To this adds that because desertification became a forum for airing national interests,

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[18] It is tempting to draw a parallel to the level of debate in the contemporary discussions on global warming, not the least with the emotional rejection of any doubts cast on the scientific foundation of the issue in connection to the recent climate conferences.

[19] Assessing the global impact of desertification Mabutt and Dregne came up with very different figures. While Mabutt's total figure for the area affected by desertification was 2001 million hectares, Dregne, using slightly different criteria for classifying desertification came up with 3271 million hectares. Apart from the fact that both figures are based on much guesswork and very little hard data, a secondary reason for the gap was diverting opinions of what was to be identified as rangelands likely to be affected, again an issue relying primarily on subjective or personal opinions. While Dregne in his assessment excluded 600 millions of hectares of slightly desertified rangelands in natural deserts where precipitation and biological productivity were considered too low to support grazing activity, Mabbutt in his assessment also excluded large areas of rangeland which he found were too remote, underwatered or otherwise difficult to put to productive use as rangelands. Confronted with these discrepancies UNEP proposed that Mabbutt make a second estimate including the "unproductive rangelands". The figures produced were now of 3475 million. hectares,

it was also under heavy political pressure from governments of the more humid countries of the region to be included in the comfortable club of countries threatened by desertification and waiting for the aid flow to arrive. This politically conditioned 'flexibility' obviously did not ease the process of instituting a workable definition of the problem[20].

The focus on biological processes also lead to a revival of Bovill and Stebbing's old theory of the encroaching Sahara. Much rhetoric was squeezed out of the metaphor of the moving sands, often without a shadow of empirical evidence. Rather further confusion was created by implying that desertification might well happen beyond drylands and in fact affect all climatic zones[21].

Very early in the debate, critics pointed to the lack of scientific foundation for this view of the advancing desert. Le Houérou, a well-known researcher of desertification processes, characterized the images of desertization as progressing at a more or less constant speed, as "one of the nicest pieces of climate fiction that one could probably find in the specialized literature" (Le Houérou, 1977:29).

In 1975, however, a research project launched by Lamprey in 1975 to provide scientific evidence from the Sudan of the presumed advance of the southern front of the Sahara. By comparing a survey of Sudan's vegetation drawn in 1958 by Harrison and Jackson with a new map of the vegetational edge of the desert Lamprey's team was able to estimate the advance of the desert to be on average 5,5 km a year (Lamprey, 1988).

Lamprey's study was, however, severely criticized. First of all the general validity of assessing the average rate of advance by just two snapshot survey 17 years apart in a region characterized by highly variable climatic conditions was questioned. Using remote-sensing techniques in the area studied by Lamprey, Hellden (1984, 1988) was able to show that 'there is no creation of long lasting desert-like

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showing that the total desertified area on earth covered no less than 75 per cent of the roductive area of the worlds drylands or 40% of the worlds productive area (Middleton and Thomas, 1994:53-56).

[20]Since 1984 the term 'desertification' has been extended from arid and semi-arid lands to cover the problems of degradation in the sub-humid zone. Often the term also includes salinisation of land within irrigation systems, which is a very different kind of problem from that of soil erosion in dryland areas (Toulmin, 1993:2).

[21]In 1987 UNEP writes: "At a rate of 27 million hectares lost a year to the desert or to zero economic productivity, in a little less than 200 years there will not be a single, fully productive hectare of land on earth" (UNEP DC/PAC, 1987 quoted from Thomas and Middleton, 1994:60)

conditions during the 1962-75 period in the area (described by Lamprey) and 'that the impact of the Sahelian drought was short lasting followed by fast land recovery'. Still referring to the same area, Olsson (1984) could demonstrate how "the boundaries between different vegetation associations appear to be the same as they were 80 years ago".

Nonetheless, it is not until recently that these statements have been heard and accepted and then only in some quarters. In the donor community desertification remains a very important issue. In spite of mixed experience[22] with most anti-desertification activities, the validity of the Plan of Action to Combat Desertification was reconfirmed in 1990 by an external review. At the Earth Summit of Rio in 1992 commitment was given to negotiate and agree on a formal convention which it became UNSOs mandate to coordinate[23]. In the convention signed in 1994, the term desertification was applied very broadly to "land degradation in arid, semi-arid and dry sub-humid areas". (UNCED, 1992: Convention on Desertification; article 1).

Desertification has, in the words of Warren and Agnew (1987:7), become an 'institutional fact, defined as one an institution wants to believe because it serves its purpose, in this case presumably to preserve the institutions themselves and/or the flow of aid to the countries affected'

In fact, the debate on desertification remains noteworthy for its lack of conclusions. In the words of Farmer and Wigley (1985) we remain in a situation where: "we don't know why the present drought exists, we don't know why droughts have occurred in the past and we don't know how long the present drought will last" (cited from Morton, 1994:154). And one may add, with reference to the large amounts of government and donor agency reports lamenting the drought long after rainfall in the Sahel had normalized in the late 1980's, that we don't even know when to define it as having ended.

Obviously the mythologization and establishment of ecological tabooing have underpinned a general tendency for simplified and generalized solutions as those offered by the afore mentioned development narratives. But if desertification is really a minor problem in relation to larger political and social ills, how come that it has been granted such an important role and has been considered to be among the

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[22]Among the shortcomings mentioned by the external review were its lack of focus, the very ambitious goals set and the omission of socio-economic factors (Toulmin, 1993:14).

[23] The old desertification jargon of the desert advancing at 5 to 10 km's a year was also stated afresh when in 1992 a new 'green party (Parti africain écologiste du Sénégal) was formed in Senegal (Gérard, 1994:83).

major development issues for almost two decades?

Part of the explanation might be found in what Ferguson terms 'the anti-politics machine'. Inspiration for the 'anti-politics machine' term comes from the wondrous 'anti-gravity machine' made famous in science fiction stories that at the flick of a switch suspends the effects of gravity. In Fergusons world, it refers to the ability of the 'development apparatus' to do almost as good a trick: The suspension of politics from even the most sensitive political operation (Ferguson, 1990:256).

This is hardly a calculated part of the planners intentions, but is rather a sort of unintentional side-effect or instrument-effect of 'development' ideology. Ferguson argues that through these side-effects many development projects, although 'failing' on their own terms, have "regular effects which include the expansion and entrenchment of bureaucratic state power, side by side with the projection of a representation of economic and social life which denies 'politics' and to the extent that it is successful, suspends its effects" (Ferguson, 1990:xv) In this way, he argues, the hegemonic problematic of development has become one of the principal means through which the question of poverty is depoliticized in the world today (ibid.:256). But while the anti-politics machine depoliticizes everything it touches, it also performs, although almost unnoticed, "its own preeminent political operation of expanding bureaucratic state power" (ibid:xv). And here may lie a possible clue to explain why many development projects in spite of being overtly recognized as 'failures' are replicated again and again. One may even suggest that it is precisely because development projects turn out to have such uses, even if they are in some sense unforeseen, that they continue to attract so much interest and support (ibid:256).

In the case of the desertification bussiness, the elevation of the problem, by UNCOD and its entourage of environmentalists, to be a global environmental problem has contributed to transform the environmentalist/desertification establishment into an anti-politics machine. For while making the issue highly political at the global level (not least via the significant amount of donor money involved), an effect of this globalization has been a depolitization at the local level. Although environmental plans are formulated as benign and universal human projects, social and political ills eventually causing desertification are no longer addressed. Blueprint plans are therefore not simply the result of poor or inadequate information. Rather, plans reflect political ambition both at international and at national level and act, as in Ferguson's Lesotho case, as a smoke screen for other agendas being played out in the development arena, agendas involving the expansion of state control or the assertion of authority by local elites.

By reducing the issue to a technical problem and even, as is the case in the desertification debate,

shifting the perspective from people to the politically more neutral natural resource and soil conservation, problems fundamentally related to poverty and deprivation are no longer addressed as political problems. When establishing ranches[24] or rotational schemes[25] the *de facto* privatization which takes place when some groups are given priority access to the range at the expense of others is seldom addressed. The same goes for the sinking of boreholes, the establishment of grazing associations or even tree planting, where the issue of who is to hold control over these key resources is most often ignored.

The tissue that much desertification /environmental assistance is made out of, makes it particularly suitable as an 'anti-politics machine'. The central features in this process are: The way in which interventions are remarkably standardized and uniform from place to place. Relatively little importance given to understanding the specific, historic and social context of a given country. Instead projects become context-independent governed as they are by free floating and untied development expertise that is easily generalized and equally easy to insert into any given situation. Development comes in a package of standard available inputs with a development discourse attached to it which seems to form a world unto itself (Ferguson, 1990:259).

The focus on technical solutions, on context-independent expertise and standardized approaches and the extended use of development narratives in the desertification discourse are partly a product of this globalization. However the global solutions imposed on local problems, such as the ranch model, the rotational schemes and the fenced paddocks, have turned out not to work. This has been particularly true for the livestock sector which, in the vocabulary of the World Bank, has been a 'disappointing experience[26] (de Haan, 1990:43). Millions of dollars have been spent, with few obvious returns and many donors and other international agencies have effectively abandoned the dry zone in their development efforts (Scoones 1994:3).

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[24]As was tried by the GTZ project in Vidou Tingoly in northern Senegal or at the Ranch de Doli.

[25]For example the World Bank funded PDESO project in the Tambacounda area.

[26]As a result of poor performance the World Bank,like many other donors, hastily withdrew from this discouraging sector. After a peak period in 1974-79 where the lending programme to the livestock sector reached 340 million US dollars a year, it declined to 240 million dollars in the period 1980 to 1985. In the second half of the 1980's it has been at around 100 million dollars a year (de Haan 1990:43).

It is this generalized failure within the livestock sector as well as the general high cost and poor performance of many afforestation or other conservation projects which has brought (part of[27]) the development establishment to look for a new theoretical framework more suitable to the unpredictability of the Sahelian environment, a framework relying on principles and guidelines rather than blueprints and prescriptions.

Whether or not this new non-equilibrium paradigm, which will be described more in detail below, will succeed in reorienting development policies in the region towards a more flexible and adaptive management depends on a range of circumstances. Obviously management practices which are less centrally directed and are more open to the objectives of the local producers might contribute to curtail the reach of state power and therefore act as a constraint to the interests of state bureaucracy. However one should not exaggerate the extent to which expansion of state bureaucratic powers has been only a side-effect of development projects (as a crude reading of Ferguson might imply). As will be shown later on, the relation between the local resource users and state bureaucracy is of elder date and is practically embedded in every-day life in the Ferlo region.

Uncovering uncertainty, the contours of the non-equilibrium framework.

When working with a 'balance of nature' concept in relation to grazing systems, outside perturbations must be treated as 'noise' which confuses and obscures an underlying equilibrium pattern. In dry savanna ecosystems, however, disturbances, 'noise' and random events turned out to be so dominant, that it proved more useful to think of the 'noise as the system itself' (Scoones and Benhke 1994:8). High degrees of uncertainty seemed to be characteristic of many African ecosystems. Therefore predicting the levels of production that the systems might yield from one year to the next proved increasingly difficult or even impossible, not to mention prediction of how ecosystem structures would change over time.

Searching for a way out of this impasse, a number of researchers in the late 1980s tried to change the focus of research by applying the emerging concepts of complexity, turbulence and non-linearity to ecological systems. These concepts, derived from theories of chaos, complex dynamics and non-equilibrium (as presented by Prigogine, Nicolis, Glieck), stressed the random occurrence of external events and the idiosyncratic and unpredictable effects of externalities on ecosystems dynamics and on populations and species (Ellis et al. 1991:2).

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[27]Namely UNSO, the german GTZ., and a number of international NGOs.

According to chaos theory, turbulence and nonlinearity are as evident as periods of stability and order. Both phenomena occur in different phases and time scales of dynamic patterns of cyclical evolution (Spooner, 1993:157). Virtually all processes periodically pass through phases of turbulence, but if turbulence is to been seen in its entirety the world must be viewed as a continual process of dynamic change over time.

The general principles of chaos theory have been summarized by Spooner (1993:159):

a) Complexity and Multilinearity : Systems are being influenced by a multitude of factors that interact to change the conditions and nature of the system and thus the tenets of which models can be applied to understand what is happening.

b) Unexpected Sensitivity. Even small change in conditions in any of the influencing factors can produce disproportionate effects. This so-called 'butterfly' effect implies that these systems are inherently unpredictable.

c) Although prediction is impossible, patterns and shapes can be discerned that do exhibit a regularity establishing points of stability, structure and order, if one knows where and how to look for them. These have become known as strange attractor or fractal patterns.

d) The evolution and adaptability of these systems is regulated by the quality of information i.e. feedback mechanisms between influencing factors. The capacity for feed-back determines the adaptability and survival status of the system in times of rapid and unpredictable change.

e) Finally the systems exhibit discontinuity and persistence meaning that when conditions change they do so almost arbitrarily fast, cascading over a threshold, but having reached a new stage that state will tend to recur or remain until the next phase changes. This means that the idea of statistical randomness must be carefully reassessed in each case where it is applied.

As one of the pioneers of applying chaos theories to ecological systems, Holling (1973) focused his work on the relations between resistance, resilience and stability, advocating the need to explore the conditions necessary for systems persistence. "If we are dealing with systems profoundly affected by changes external to it, and continually confronted by the unexpected, the constancy of behavior becomes less important than the persistence of relationships" (Holling 1973:1). Undisturbed natural systems, as well as those under the influence of man, are likely to be continually in a transient state. Therefore useful insights might be gained, he supposed, by shifting emphasis from the equilibrium

states to the conditions for persistence. In contrast to stability, which represents the ability of a system to return to equilibrium after a temporary disturbance, persistence is measured through resilience i.e. through the ability of the system to absorb change and disturbances and still maintain the same relationship between population and stable variables (Holling, 1973:14). Therefore random perturbations such as forest fires, pest attacks etc. may produce instability in the sense of large fluctuations but may also introduce resilience and capacity to persist. In short, Hollings insistence on persistence emphasizes the need for keeping the system open, to view events in a regional rather than local context, emphasize heterogeneity, and accept the unpredictability of future events (Holling, 1973:21).

Building on these insights Weins (1977) and Walker et al. (1981) and later Caugley et al. (1987), Ellis and Swift (1988), Westoby (1989) and others were able to demonstrate that unstable non-equilibrium conditions characteristic of, for example, African savanna ecosystems was a fundamental condition producing a highly resilient system capable of repeating itself over time until a disturbance restarts the sequence. In these areas which are dominated by frequent droughts, population fluctuations prevent plant and herbivores from developing closely coupled interactions as ecosystem development and succession are abbreviated or non-existent and ecosystems seldom reach the climatically determined equilibrium point which is central to plant succession theory and the equilibrium paradigm as mentioned above (Ellis, 1995:38). In such non-equilibrial systems, the complex dynamics they manifest and the resulting uncertainties, arise because of the amplification or positive feed-back within systems[28] or due to external forcing.

In the case of dryland ecosystems, external climate forcing is the primary case of complex dynamics. This is in contrast to equilibrium systems where populations are more or less in balance with resources, other populations or external forces like climate (Ellis, 1995:37).

A multi-year study carried out by Caughley et al. in 1987 - analyzing the interactions between climate variability and plant production, plant composition, sheep and kangaroo population in eastern Australia - contributed to establish the scientific basis for a distinction between equilibrial and non-equilibrial ecosystems[29]. Caugley and his colleagues concluded that highly variable systems differ from

[28] The so-called butterfly effect (see Glieck, 1987)

[29] In this area rainfall averages 200-300 mm a year but is highly variable, varying between 45 and 50 per cent from the mean. The effects on pastures and herbivores was substantial and changed dramatically with rainfall patterns.

slightly variable systems in both degree and kind. By focusing on the interannual variability of the system instead of measures of mean value they judged that the threshold where a system becomes dominated by variability more than by average conditions occurs when rainfall coefficient of interannual rainfall variations (CV) nears or exceeds 30 per cent. In such a system, they concluded, the concept of carrying capacity is largely an abstraction and not very useful (Ellis et al., 1991:3) They also suggested that where CVs were below 20 per cent, animal populations would remain relatively stable and strong feed back would develop between herbivores and plant i.e. equilibrium conditions prevailed (Ellis, 1994:39)[30].

It may, however, be difficult to distinguish sharply between systems governed by equilibrium or non-equilibrium characteristics. Much seems to point towards Wein's suggestion that ecosystems exist along a gradient with dynamic behavior patterns ranging from equilibrial to non-equilibrial characteristics with considerable interannual and local variation. (Weins, 1984, cited from Ellis et al., 1991:4, Scoones, 1995:2)).

Implications for range management.

But what implications do these insights have for range management? In their study of Turkana ecosystems over a period of 10 years Ellis and Swift questioned the applicability of traditional range management and livestock development procedures. If, as hypothesized, it is external factors, such as rainfall, that determine availability of forage altering the grazing pressure is not likely to have much effect. Instead of trying to manipulate and control the system, both animals and herders are in a position to respond to externally driven change. Therefore, pastoralists are likely to move their animals to more favourable areas as forage resources decline. As a result, they argued, pastoralist have little capacity or imperative to control localized fluctuations in rangeland productivity. Instead they have adapted to instability through so-called opportunistic management strategies.

In short, livestock populations may decline because of lack of fodder, but fodder is scarce because there is too little rain not because of excess numbers of animal (Behnkhe and Scoones, 1994:9). Overgrazing and range degradation is therefore likely to occur only under special circumstances such as when drinking water is a limiting factor or mobility of the herds is constrained (Bartels et al.,

[30] This is in line with research carried out by Coppock in the Ethiopian highlands where annual precipitation is relatively high (400-700 mm) and droughts are infrequent. Here livestock population appears to be near carrying capacity much of the time and there seems to be cyclical patterns of overgrazing. In this area carrying capacity, successional trends and population dynamics are all viable concepts (Coppock, 1993:60).

1991:26) According to Ellis and Swift (1988), livestock numbers are, in fact, never given a chance to approach ecological carrying capacity because major droughts are frequent and drought recovery slow. This is, however, one of the points that will be discussed below.

Recognition of unpredictable variability as the governing principle in range ecosystems has lead to a growing understanding of pastoral strategies geared towards seizure of opportunities and avoidance of hazards. This insight is by no means new, as numerous studies by ethnographers have documented in great detail the way pastoral livestock keeping is adapted to environmental variability (Gulliver, 1955; Dupire, 1962; Dyson-Hudson, 1966; Dahl,1979). Nonetheless, conventional livestock development has been dominated by technical disciplines, as veterinary science and livestock breeding receiving very little input from social sciences (Scoones, 1995:8).

One of the first from within the establishment to question conventional range management practice was the economist, Stephen Sandford. In 1982, he made the important observation that as rainfall variability increases, so do the opportunity costs. This means that conservative grazing strategies as those recommended by most livestock development projects in Africa, (i.e. ranches with fenced paddocks, rotations, controlled stocking rates etc. dictated by the long-term carrying capacity of the system) are likely to prove uneconomic under highly unpredictable rainfall conditions. Under such conditions a conservative strategy, defined as one which maintains a population of grazing animals at a relatively constant level without overgrazing through good as well as bad years, would imply that during good years livestock numbers were not allowed to increase to utilize all the additional forage available.

In contrast, opportunistic herd management strategies, where livestock numbers vary in accordance to the availability of forage, enables the extra forage available in good years to be converted directly into economic output (milk and meat) or into productive capital in the form of a bigger herd (Sandford, 1982:62). Obviously such a strategy carries the implication of heavy losses, periodically and unpredictably whenever drought occur. But such losses can be dealt with in several ways, for example through insurance, diversification and not least spatial mobility.

Several earlier as well as later studies have backed this view by showing how productivity in pastoral herds managed through opportunistic strategies are similar or even superior to those managed as commercial herds, eventually on ranches[31].

[31] Breman and de Wit (1983:1344) have shown that transhumant systems in Mali yield on average at least twice the amount of protein per hectare per year compared to both sedentary agro-pastoralists and ranchers in the US and Australia. Examples from Botswana, Kenya, Tanzania, Uganda and Ethiopia confirm these findings (see Scoones

The competitiveness of indigenous systems of herd management are closely related to the concepts of resilience and adaptation introduced above. One of the principal forms of adaptation is through the matching of available feed supply with animals at a particular site (Scoones, 1995:9) i.e.moving animals to areas where fodder is available. In this way mobile livestock producers can maintain a total livestock population within a wide geographic area which is in excess of what could be sustained by several herds confined to their individual area (Benhke and Scoones, 1993:15).

Another aspect of adaptation and resilience which has been overlooked in previous range management efforts mainly concerned with production increases is the adaptation of animal physiognomy. Recent research has revealed that indigenous zebu cattle, for instance, have energy sparing mechanisms that act as an adaptation to undernutrition and water deprivation. Such mechanisms may off-set increased mortality and increase recovery after drought[32] (Scoones 1995:18) This shows that a) indigenous animals are well adapted to uncertain fodder and watering availability and b) that more animals can be sustained on a given amount of fodder during periods of drought due to reductions in fasting metabolism.

Finally one could point to the possibilities provided through increasing locally available fodder by importing feed from elsewhere (hay or industrial feed) or by enhancing fodder production through investment in key resource sites.

All this points to the difficulties of assessing an upper limit to the amount of cattle which can be sustained on a given range. It also helps to explain why the explosive livestock growth experienced throughout the region from the beginning of this century has failed to the produce the anticipated

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1995:12-13). Between agro-pastoral and transhumant production research is ambiguous. Scoones refers to research carried out in Mali where no significant differences were found between transhumant and agro-pastoral production (Wilson 1982), while van Ray and de Leeuw (1974) in northern Nigeria found settled livestock to be more productive because of their preferential access to prime grazing.(Scoones 1995:13)

[32] A trial carried out by Finch and King (1979) showed that increasing the walking distance and decreasing the watering frequency, as might happen in periods of drought, did not result in any significant loss of weight in African zebu. Similar adaptation has been observed among calves of Borana Cattle in Ethiopia. Here reduction in milk supply to the calf did not affect the longer term target weight of the calf, despite reducing the growth rate in the short term. Recovery following drought was equally rapid (Coppock, 1992). According to Western and Finch forage need during droughts may be reduced by as much as 30 per cent through changes in metabolic rate. This is likely to reduce drought induced mortality among zebu cattle considerably. (Scoones, 1995:18)

catastrophe and hecatomb in terms of overstocking[33]. A possible explanation might be that, seen in a longer perspective, the ecosystems in these areas are not fragile. On the contrary they display considerable resilience and are able to absorb considerable change.

The strategies adopted by herders to mitigate risk display similar flexibility. According to changing economic, environmental and personal circumstances herders may diversify their production assets by a) keeping a mix of livestock in terms of species and class, which enables herders to exploit seasonal and annual variability as well as forage quantity and quality on a local and regional basis; b) by diversifying their livestock production goals for livestock production to include not only milk and meat production but also animal transport, traction or capital accumulation and c) diversifying their economic activities into cropping, wage labour or commerce (Perrier 1994:54). This flexibility also involves a far more free flow of investment between different sectors than is usually assumed, often involving a certain degree of occupational straddling. For some it is more profitable to invest surplus from cropping in livestock, for others it is the reverse (Morton 1994:85). If it turns out more profitable herders may take up agriculture or farmers start to nomadize (or hire a herder). In short, people direct their investments and labour efforts towards the most profitable activity at any given time.

Finally local producers are opportunists, who manage for current conditions rather than for long term means or possible future calamities such as extreme droughts. In highly variable and risk prone environments planning is often a very individualistic undertaking. The tendency of mainstream range management to assume homogeneity of both social group and landscape, and consequently planning for averages, has therefore meant that diversity is unaccounted for. Often it is precisely this diversity that allows the pastoral system to sustain itself.

Diversity and flexibility give rise to opportunistic management, management for current conditions rather than for long term means or for rare events such as extreme drought (Sandford 1983). This means that conservation of rangelands is of secondary concern to pastoralists. Because land is in surplus in large parts of the Sahel, especially those which are governed by non-equilibrium conditions, it has relatively low value. Herders have little motivation to manage for stocking rates and rather manage for the ratio of livestock to other limiting factors such as labour and water. The benefits to be gained from controlling stocking are simply too small to justify the efforts of enclosure and

[33] Morton reports on the inconsistency of several reports on the Sudan claiming that already in 1955 the Baggara territory was considered to be 20 per cent overstocked while between 1953 and 1976 the cattle population more than trebled (Morton, 1994:170)

negotiation (Morton, 1994:177).

Turning a blind eye on local initiatives and the effects of change.

Also the brief historical focus, the tendency of viewing environmental problems in terms of 'before' and 'after' the drought and the predilection for characterizing indigenous production systems as stagnant has furthered a tendency to turn a blind eye to the rapid change which has characterized recent development of most Sahelian societies. Far from being stagnant these societies have to a very large extent been able to adapt effectively to changing circumstances when given the chance. In most cases where technological innovations have proved practical they have also been adopted by the local population, although sometimes in ways that differ from the original intentions.

Often these developments have been almost entirely the result of private initiative. This has been the case of the adaptation of donkey carts and rubber inner tubes, discussed at length in the present dissertation. These innovations are examples of key technologies which have contributed to break two of the principal constraints of the region: water and transport. Similar cases are reported by Morton. In the case of Darfur major expansion of farming of the previously waterless *goz* regions did not come from sinking of boreholes alone. Due to the considerable costs involved in borehole drilling, the number of fields which can be cultivated in walking distance of the waterpoint is fairly limited. Therefore credit for effectively bringing vast areas of land under the hoe also goes to the local adaptation of old Bedford truck axles into flat one-horse carriages fit for carrying water in old fuel drums. In the same way the transformation by local blacksmiths of old car springs into cheap tools for clearing and cultivating has played no little role in the expansion of agriculture (Morton, 1994:75). Simple new inputs like hessian sacks or second hand containers in the form of plastic cans, tins and bottles may also have a crucial impact on boosting domestic markets and exports on a regional level as it helps overcome constraints related to transportation of goods over longer distances. In most cases these innovations have been provided solely by local traders.

But not all innovations concern low technology input. Often, considerable local activity remains veiled to the observer simply because the right questions are not asked.[34] Often one is surprised to find large investments, such as expensive four wheel-drive pick-ups or private wells financed by individual herders, or by the large amounts of money which can be raised in the local community when funds are

[34]This point was well illustrated by a Senegalese colleague who in the course of a survey on wealth and consumption habits was interrupted in his listing of the family's properties i terms of torches, mats, kitchenware by the respondent drawing his attention to the brand new Mitshubishi pick-up parked outside the hut (O.Touré 1990).

raised for building a mosque.

A paradox exists between underdevelopment explained as lack of capital while herders are blamed for accumulating too much capital in their herds. Although unevenly distributed, much seems to suggest that considerable amounts of money may be mobilized locally in cases where interesting investment objects occur. At least Mortons experiences from Darfur as well as my own from the Senegalese Ferlo accounts of several local millionaires and considerable investments directed into trade and public transports. Obviously, all theses activities have contributed to a considerable development of local markets. One of the reasons, however, why this remain largely unaccounted for in aid circles may be the tendency the see a need for foreign capital as more or less axiomatic to developing countries. For when capital intensive development projects are present with their capital intensive portfolio there is no need for local herders or traders to risk their own capital.This dilemma, which can be dealt with only superficially in the present context, is summarized neatly by Jean-Pierre Joseph: "Le développement, c'est l'entrepreunariat sans le risque[35]" (see Jean Pierre Olivier de Sardan, 1995:191).

Apart from the tendency of concealing local potentials for rapid growth, the anticipation of catastrophe and tabooing of ecological issue may also lead the observer to perceive environmental change in a more gloomy perspective than is necessary. Focusing on resilience instead of stability, and adaptation and absorption instead of equilibrium and degradation, for example, may change the perception of some of the phenomena, considered by the mainstream view to be indicators of future turmoil. Too often degradation and erosion are defined in terms of reduced productivity, while the question of its significance in terms of impact on peoples ability to make a living is left unaddressed.

Erosion for example is not disadvantageous *per se*. In some cases some groups might be perfectly happy for the change. There might be no need to lament high soil erosion on slopes if it proves to provide valuable soils and nutrient for production systems that use the valley bottom lands[36]. Equally, the costs of reducing degradation in terms of the opportunity costs of output foregone of crops and animal produce may be very high in relation to reduced levels of soil erosion (Toulmin, 1993:5).

Migration is another example of issues which almost automatically are perceived in a negative light,

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[35] "Development is entrepreneurship without risk-taking"

[36] Erosion may be seen not as a hazard but as a resource. By directing the flow of the eroded material, Mixtec farmers can annually feed their fields with fertile soils and can even extend their agricultural land. Before large scale gullying began, the agricultural productivity of the valley was less than it is today as the judicious use of gullying has permitted them to convert poor hill-top fields into rich alluvial farmland (Spooner, 1982:19).

being interpreted mainly as an effect of droughts and degrading resources forcing local population to move southward to less uncharitable environmental conditions. One may, however, turn the argument upside down, seeing migration as a search of opportunities. Migration as exploitation of opportunities has long traditions in West Africa and is connected to both agricultural expansion, to development of trade and to nomadic pastoralism.As many areas are characterized more by scarcity of labour than by scarcity of land (Berry, 1989), influx of migrants has often been acted as catalyst for development of new productive activities as is the case in the Ferlo. Far from being restricted many traditional African societies are highly porous, a fact that does not exclude the existence of dispute and conflict over resources. But conflict is not always negative, it is also the means by which groups can overcome inappropriate or 'unjust' distribution of resources (Morton, 1994:246).

In conclusion:

In the course of this chapter I have shown how "conventional wisdoms" on range management based as they are on simplified and undocumented assumptions fail to understand the production objectives of African herders and the dynamics of the African rangeland systems. Obviously, the complexes of signs and assumptions interwoven into narratives such as the degrading range, the tragedy of the commons and the predilection of African herders to accummulate large and unproductive herds, contain bits and pieces of valuable and pertinent information. They are therefore inadequate rather than totally untrue: Herskovits' insistence that livestock serve other purposes than merely as marketable commodities, or Hardins' insistence on perceiving herders as rational producers provide valuable points of departure for further analysis. But in the massive and uncritical manner in which it is most frequently used, the effect has too often been that attention has been focused on poorly defined problems and misguided solutions focusing on technical rather than on political issues. This focusing on environmental explanation and technical solutions, has together with an emphasis on biological rather than social indicators, resulted in a concentration on the animals and the grazing environment rather than on the herders and their production system. This has been further aggravated by the adoption of a very short time perspective (before and after the drought) which has contributed to create an image of African environments as standing literally on the verge of catastrophe. Consequently, rapid action to restore 'balance of nature' has been on the agenda rather than achieving in-depth understandings of the complex dynamics governing the African environment.

In spite of accumulating documentation of its innacuracy and evidence that the policies it suggested were at best inefficient in dealing with dryland degradation, desertification and its accompanying environmental narratives exhibited considerable perseverance. This was the case not least because of convergent interests between local governments and the international donor community. Through its properties as an 'anti-politics machine' the desertification debate has functionned as a means of

suspending politics from discussions of dryland degradation, removing the focus of discussion from politically sensitive issues such as rights and control over resources towards the politically more neutral 'environment'. For national governments the 'crisis' scenario served as a justification for authoritarian interventions in rural land use and for claiming rights of stewardship over resources previously outside their control, as local herders and farmers were assumed to act merely as destroyers of their environment. For the international donor community the desertification narrative served as a pretext for an unprecendented swelling of aid flows and hence of aid bureaucracies enabling them, as stated by Swift (1996:88), to assert rights as stakeholders in the drylands of Africa[37]. In this way they managed to gain legitimacy to participate in the decision making over dry-land resources and a platform through which they could try and impose their views.

Although these narratives, more or less intentionally, have served the above mentionned purposes, they have turned out to be poorly fitted to provide explanations for the changes actually occuring in the rangelands of the Sahel. Contrary to the alarming scenarios generated by the desertification debate, the rangelands in the Sahel have turned out to be far more resilient than anticipated, and should therefore be analyzed as such. Rather than perceiving of the African environment as stable systems which have been disturbed but which eventually may have been brought back to their previous state of equilibrium, more explanatory weight should be given to understanding the "noise"i.e. accepting the randomness and unpredictability of the system. Instead of viewing the system as stagnant and unable to develop except through external interventions, emphasis should be turned towards the ability of the system to absorb change and disturbances i.e. towards the resilience of the system and its capacity to persist.

In the same vein, herders should be regarded not as either passive victims or active destroyers of their otherwise stable environement. Rather a new understanding of herders as creative and opportunistic entrepreneurs who are able to adapt and even take advantage of changes in their environment should emerge. It is this approach, stressing resilience and adaptation as well as fluidity and indeterminacy with regards to outcome which will provide the theoretical background upon which the environmental and productive changes generated by the post-drought migration will be measured.

Hence a number of preliminary assumptions may be extracted from the "new ecology" approach which will serve as guidelines for the analysis in chapter 4:

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[37] Swift (1996:89) also points to the convenience of the crisis scenarios for part of the scientific community as it provided justification for large scale funding for the development of remote sensing.

- Most rangeland ecosystems and pastoral development are governed by a multitude of factors which interact and change the system making prediction almost impossible.

- In spite of high variability and unpredictability the systems display high degrees of resilience both with regard to biomass and livestock production. Adaptation of flexible and diverse management strategies ensure that in cases of severe droughts mortality is limited and herd recovery rapid.

- This high degree of resilience also goes for adaptation of various technological innovation. Far from being stagnant pastoral societies have shown the ability to incorporate technological innovation when these suit their production goals.

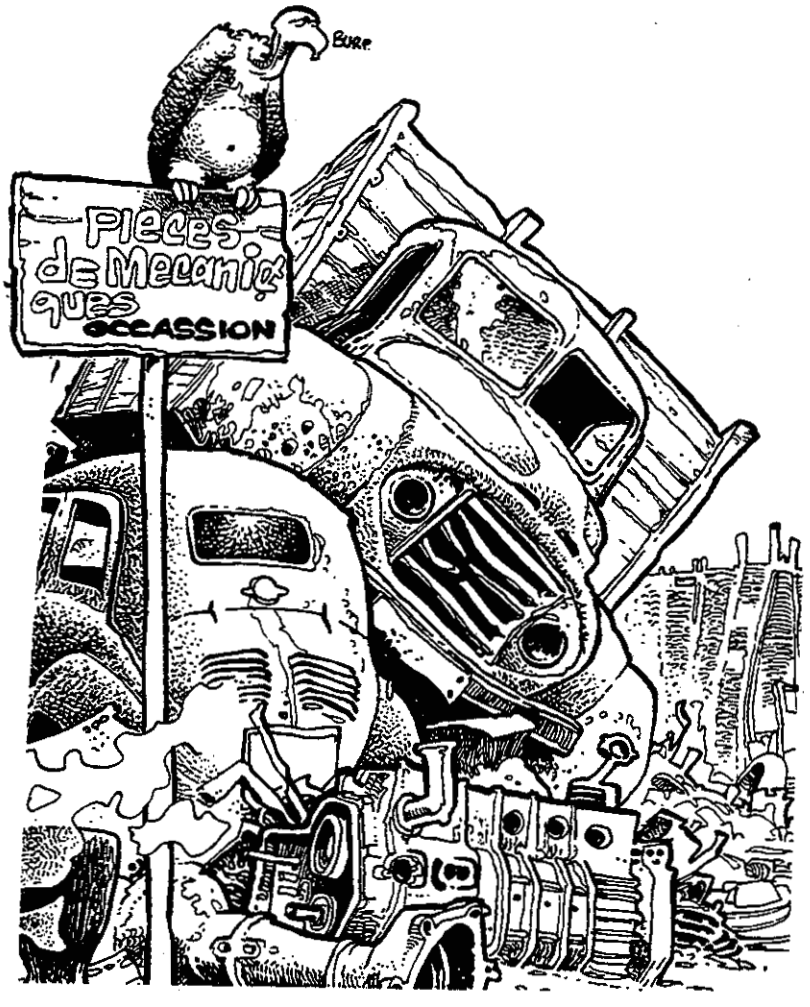
- African dryland ecosystems are not as extremely fragile as anticipated. Recognizing this implies parting with a number of anthropologists and 'deep-ecologists' who have focused on extremely difficult ecologic conditions which only pastoralists with their ancient, fine-tuned deep ecological insight can exploit without disturbing its delicate balance, and for whom any change in terms of introduction of new technology would alter this balance and plunge these proud people into ecologic disaster.

- Most pastoralists have turned out be far more concerned with profit maximizing than with environmental concerns. Few of them adhere to the idea of 'the catastrophic threshold' implied in the notion of carrying capacity. Too often ecological change is perceived a priori as deterioration, even in cases where such perception is not shared by the local population.

Finally it should be stressed, that although it is true that most 'traditional' methods of range management have turned out to be far better adapted to the highly variable environment than the methods offered by 'modern' range management, focusing on the harmonious herder exploiting the resources in a sustainable manner dismissed the central point: that any management system is the result of specific historical conditions affecting the relation of power between different groups, including the role of new technologies likely to influence patterns of use and the control over resources. Rather than the myths of the 'pastorale' where herding is regarded as a 'natural proces' betraying all the qualities of aboriginal harmony, it seems fruitfull to look at herding as a "social" process which requires political, economic and cultural investment in land, social relations, animal capital and labour and political institutions. Before passing on to the analysis of Senegalese reality the next chapter therfore offers some reflections on the political institutions involved in herd management.

Chapter 3.

Commons, institutions and boundaries; fitting social dynamics into the study of common property.



Commons, institutions and boundaries; fitting social dynamics into the study of common property.

An issue of primary interest to the present research has been the ways in which access to grazing lands and water have changed as a result of the arrival of a large contingent of 'foreign' pastoralists to the boreholes of the Ferlo region. Understanding how this has affected the indigenous, relatively sedentarized agro-pastoralists of the area and what changes it has brought about in terms of changing social relations requires an analysis of the institutional arrangements related to regulating access to water and grazing lands. It also requires a more general understanding of how groups of people and societies innovate technologically and institutionally, to accommodate and respond to environmental change.

According to mainstream views, environmental degradation arises from unclear institutional arrangements (including property rights) and from the absence of an authority structure to give meaning to such rights (Bromley and Cernea, 1989:55). In pastoral societies, crucial resources such as water or grazing are seldom held as private property. Enhancing more clear use rights on territories attributed to distinct groups of resource users has therefore been the prefered panacea among policy-makers. This is designed to avoid further degradation and restore the balance between the resources available in a specific setting and the number of users.

But how does this fit with the many controversies and intense struggles concerning access to and control over resources observed during fieldwork? Is it likely that these may be solved just by establishing a more comprehensive and efficient framework of rules to defend resources against (ab)use by foreigners? Can one assume that people share a common interest in planning for long term conservation of their resources? Do all rural dwellers perceive environmental problems in the same way? Or do they have other, equally important, resource priorities? And is it possible to distinguish 'members' of a community from the outsiders against whom they are supposed to protect their resources?

As shown above, the balance of nature view is prominent not only in the understanding of the biological processes governing semi-arid lands, but also in mainstream considerations on the social processes related to local management of natural resources. Many policy interventions depart from the assumption of a distinct and relatively stable environment which has succumbed to degradation and deterioration but with potentials to be restored and managed sustainably. Rural communities are seen as the appropriate body to execute this restoration, governed as they are by an underlying common interest in preserving the natural resources in their previous (undegraded) state.

Within such a framework, conflicts of interest or diverging resource priorities tend to be perceived as exceptions, disturbances or "noise", which will vanish once harmony is restored. Nonetheless,

this dismissal of disturbances, which is analogous to the situation of 'equilibrium view', often results in rather sterile conceptions of the institutional set-up of rural communities. For, just as in the case of the physical environment described in the previous chapter, it turns out that it is the "noise", the exeptions and the random events rather than a fictive regularized enactment of rules that hold the clues to the workings of the systems. Rather than assuming an affinity of interests between a distinct group of users, it seems that it is is precisely in the open struggles over access and control and in the constant social manoeuvering over rights to resources that an understanding of the institutions and their transformation may be found.

The following chapter is a mainly theoretical argument which discusses the limitations of mainstream views on institional aspects of natural resource management.This, maybe somewhat tedious, examination of the shortcoming of an influential approach (the common property and collective action approach) has been a neccesary exercise as it enabled me to identify why this straightforward and easily applicable framework ends up with such static and undynamic visions of local communities and of peoples' handling of their productive assets. On the basis of these insights, an alternative frame for studying institutional dynamics is developed exploring the ways in which differently positioned actors gain acccess to and control over the resources that are instrumental to their well-being. Here rights to resources are perceived as a highly political issue, subject to constant social manoeuvering and to ongoing disputes about political and social identity in terms of difference and belonging. This is in contrast to the de-politized vision of the homogeneous community offered by the conventional management approach

While the present chaper will limit itself to the theoretical argument, its empirical implications will be illustrated when the Senegalese case material is analysed in chaper 5.

Approaches to the study of institutional aspects of natural resource management:

Issues of institutional arrangements in relation to resources held under common property (as is the case with water and rangelands) have been discussed intensely during the last 30 or 40 years. Three different arguments may be distinguished[1]:

a) the transformation approach, which is closely linked to the Tragedy of the Commons model, refers to common or 'traditional' property rights as causes of environmental degradation. This approach stresses the need for thorough change of the institutional setting governing land tenure and natural resource management. It points to individualized and exclusive titles of land as a *sine qua non* for improved economic performance (North and Thomas, 1990; Demsetz, 1967; Feder

[1]The distinction between the transformation and the perservation approach has been inspired by a unpublished working paper by Christian Lund.

and Feeny, 1990).

b) the preservation or rehabilitation school which is opposed to the transformation approach. It argues that traditional tenure systems, as for example common property, may be superior to private property systems as they are more adapted to the specific social and ecological conditions. In this approach, which might also be termed the 'Common Property and Collective Action School', the most prominent contributions are the works of Ostrom (1985, 1990), Bromley and Cernea (1989), Berkes (1989), Oakerson (1992), Thompson (1989) and Wade (1987). Characteristic for this approach is the focus on the "development, evolution, performance and survival of institutional arrangements in order to ensure sustainable and optimal resource use". It builds on an idea of communities as sites of consensus and sustainability.

c) the negotiated development approach which stresses how diverse and conflicting values and resource priorities -rather than shared beliefs and interests - pervade social life and may be struggled and bargained over. The aspiration here is not on a reconstruction of more or less imagined traditional institutions. Instead the focus is on the complexity, the ambiguities in local land tenure systems and on looking for possible ways of adapting local practices to modern law.This view is embraced by, among others, Berry (1994), Moore (1987) and Peters (1994).

During the last 20 years the transformation view which governed most development policies in the 1960's and 1970's has largely been superseded by the preservation view. In recognition of their overt failures in reaching the expected goals, the large scale external interventions proposed by the transformation approach, have to a wide extent been abandoned. The scene is gradually being taken over by the preservation view, carrying with it an urge for community-based sustainable development. Hence the transformation approach (touched upon in the previous chapter) will only be mentioned briefly here.

The question is, however, whether the image of local communities as responsible resource managers, promoted by this new mainstream view, is fitted to understand the often complex and contradictory social relations underlying local resource management practices; or whether it is too simplified and static. The aim of this chapter is to discuss the validity and appropriateness of the common property model and how it has been constructed. This exercise aims at elaboring an alternative framework for understanding the commons as socially embedded, i.e. a view that focuses on differentiation.

A short outline of the common property framework.

The Common Property approach encompasses a wide array of different scholars and a myriad of both theoretical and empirical contributions. What binds them together is perhaps first of all, as

summarized by Li (1996:504), that they are writing against currently dominant notions, such as the Tragedy of the Commons thesis, the alleged inevitability of private property and individual acquisitiveness (see Berkes and Farvar,1989; Gibbs and Bromley, 1989) and the assumed managerial capacity and wisdom of governments (see Thomson et al., 1989).

On closer examination, however, it turns out that the transformation and the preservation arguments, in spite of their apparent disparities, have much in common when it comes to their perceptions of the ways in which people impact on their environment. Both are deeply implanted in the equilibrium paradigm described in the previous chapter, with its paraphernalia of neo-malthusian environment-population nexus, and unilineal view on development. Despite mutual disagreement, the transformation and the preservation approach share common grounds and perceptions. They assume that the causes of land and vegetation degradation lie in the absence of specific regulation, long term investment or technology to make it otherwise (Fairhead and Leach, 1996:13). Although distinguished by their choice of means, both approaches believe that technological solutions, to restore the previous harmony between nature and society, exist.

One reason for these overlaps is that both perspectives draw heavily from common theoretical grounds such as the New Institutional Economics[2], Rational Choice and Game Theories. Prominent for both views is the emphasis given to the role of transaction costs in comparative institutional analysis: "When it is costly to transact, institutions matter" (North, 1990:12) As resources become more scarce, and thus more valuable as a result of increased population pressure, market demands, etc. the costs of controlling them (the transaction costs) will decrease in relation to possible benefits. In such cases institutional arrangements ensuring exclusivity will emerge.

The management of common property natural resources is furthermore approached theoretically by both groups as a collective action problem, which arises in consequence of the nature of the resources i.e. their subtractability in use and the difficulty of excluding unauthorized users. Inspiration for this view stems from Rational Choice Theory, but in contrast to the transformation variants built on the Cartesian image of man as a lone hunter for benefits (de Groot et al., 1995:212), the preservation school stresses the cooperative outcome of the models. Because of the uncertainty about the decisions of others, interdependence among users is required to provide "insurance mechanisms". Cooperation is therefore likely to arise (Runge, 1981).

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[2] New Institutional Economics have emerged during the last two decades. Its major idea is that institutions influence economic activities and human exchange by creating incentives or disincentives (North, 1990). As laws,rules and norms change in space and over time, so does the profitability of various activities. This will influence the behavior of the various economic actors accordingly.

Accordingly, Common Property theorists as Bromley and Ostrom agree with North and Demsetz, that problems in rural managerial capacity arise as a result of unclear institutional arrangements including property rights and from the absence of an authority system to give meaning to such rights (Bromley and Cernea,1989:55). But, it is held, absence of an authority system is characteristic only of open access regimes (see previous chapter) where problems arise from free and unregulated access. In relation to common property, problems stem "from tensions in the structure of joint use rights adopted by a particular village or group" (Runge, 1986:624). Such tensions, likely to undermine the local system of authority and regulation, may arise from a variety of complex causes, including population pressure, changes in climate or technology or political forces.

The presumption made by the transformation view, that central government rights or private property rights is the only way to avoid the Tragedy of the Commons is rejected by the preservationists[3] (Ostrom, 1988:107; van der Brink, Bromley and Chavas, 1995:375). Under specific circumstances, communal resource management systems may still prove to be the most economically rational form of property, and "solutions (...) worked out by those individuals directly affected [may] prove more successful and enduring than resource regimes imposed by central authorities" (Keohane and Ostrom, 1994:403). Collectives, they stress, select property regimes on the basis of their suitability for the resource in question - its variability, its productivity and so on. Therefore under the appropriate conditions voluntary collective action is feasible and effective (Feeny et al. 1990).

Among Third World villagers there are particularly strong incentives for collective decision making and common property regimes, it is held. According to Runge the relative poverty of many villagers contributes to eliminate a myriad opportunities acting alone. These limitations can make joint-use rights a necessity. In particular the transaction costs of well-defined and enforced property rights may be too great for a subsistence economy to bear. Furthermore basic natural resources of which the villagers are dependent are often quite random over time and space, therefore assignment of joint rights of access will give a more equitable result than exclusive, and therefore inherently unfair, distribution of resources. Finally it is held, villagers face a high degree of uncertainty with respect to income streams. As no individual can be assured that he/she will be spared failure, common property institutions may be created,"providing the right of the many as a hedge against uncertainty" (Runge, 1988:19-21; Runge, 1986:624-25).

The degree to which homogeneity within communities is taken for granted varies considerably. On the one hand Berkes assumes that local resource management systems normally provide mechanisms for the equitable use of the resources with a minimum of internal strife or conflict.

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[3] Both Ostrom and Bromley recognize that dividing a commons and asigning individual property rights may enhance efficiency in many situations (see for example Ostrom, 1988:196).

This is because rules mutually agreed upon by all the members usually provide an efficient means of conflict resolution and reduce transaction costs in the enforcement of these rules (Berkes and Farvar 1989:11). On the other hand Ostrom (1986) limits herself to listing homogeneity of the group as one of the central preconditions[4] for efficient local institutions to emerge. Nonetheless, Ostrom does presume that community members "share a common culture, knowledge of the resource and knowledge of the resource use rules, facilitated by the simple rule that you must live in this community to use this resource" (Ostrom, 1985 in Berkes and Farvar, 1989:12).

In general the assumption goes: When a relatively isolated set of individuals live in a slowly changing environment, they will be able to devise institutional arrangements well matched to their situation and problems (Ostrom, 1987:251). When resource degradation occurs, it is therefore attributed to the dissolution of local level institutional arrangements "whose very purpose was to give rise to resource use patterns that were sustainable" (Bromley, 1989:7). Such undermining of local authority structures is seen as the result of external interventions of the colonial administration and later the nation state. Although some consideration is given to socio-economic differentiation and growing stratification within communities "that initially were much more homogeneous" (ibid.), the blame is placed primarily on obtrusive state interventions such as nationalization which have turned controlled-access commons into de facto open access resources. (See for example Thomson, 1987; Moorehead, 1991; Lane,1993). Where nation states have stepped in to control resources, inefficiency and short term profit seeking by the state has, it is held, resulted in rapid deterioration of the resources.

Consequently, a vast number of recent policy reports have advocated the merits of decentralized, local management of communal resources (see for example Thompson,1989; Bromley and Cernea, 1989; IFAD,1995; UNSO,1994,etc.). According to them, the aim is turning resource control away from the state and private capital towards the rural people whose livelihood depends most directly on the resources. A central issue in this context has been the granting of legal rights to local communities to enforce rights of exclusivity thereby controlling attempts at free riding.

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[4] Drawing from a large number of case studies Ostrom lists a number of variables which are likely to enhance the emergence of institutions able to deal with local natural resource management:

1). With regard to the resources it is advisable that the common property regimes are sufficiently small,so that the appropriators can develop accurate knowledge of external boundaries and internal microenvironments, and that the boundaries of the CPR are sufficiently distinct so appropriators can develop accurate knowledge of the external boundaries,

2). with regard to the appropriators: the number of appropriators should be sufficiently small so that costs of communication and decision can be kept low, that the group is homogeneous with regard to use patterns perceptions of the risks of long term, that there are not substantially different exposures to risk present in the group (se Ostrom,1992: 299).Further design principles presented in her previous book are:

3) that appropriators that violate operational rules are likely to be sanctioned

4) that low cost arenas exist to resolve conflicts between members

5) that the rights of the users to devise their own institutions are not challenged by external government authorities. (Ostrom 1990:91-101

Opening a new space for policy shifts

There can be no doubt of the significant impact which the preservation approach had on the practical political-economical level. In particular the works of Ostrom and Bromley and Cernea have contributed to changing the outlook of practitioners and policy makers towards a recognition of the potentials of common property resource management in "a climate otherwise dominated by structural adjustment and free market mania" (Li, 1996:505). The creation of a "counter-image" of successful intact resource managing communities in harmony with nature has provided important justifications when NGO's and major donor agencies have adopted more community-based approaches to development in the course of the 1980s and 1990s.

It may, however, be held that apart from delivering a persuasive counter-argument to the Tragedy of the Commons model, the preservation argument has little to offer. This is particularly so when it comes to understanding how ecological and social dynamics influence the natural resource management activities of diverse groups of people and how these dynamics in turn help to produce and to shape particular kinds of environment.

As will be argued below, the preservation view remains stuck with a number of common assumptions about community and the environment and the relation between them. These assumptions obscure an understanding of the complexity and ingenuity of human adaptation to environmental change. Hence,they are unhelpful in describing the course of historical change in, for example, herders and farmers relations to local resources such as land and water.

Images of communities.

In the previous section the construction of narratives - stories about the world that frames problems in certain ways and in turn justify particular solutions - was discussed. As shown above, the community-based sustainable development approach carries with it as many simplified assumptions on the nature of community and its relation to environment as did its counter-argument the Tragedy of the Commons.

Often the communities described are ideal types, unlocated in time and space. But they are portrayed as if they exist - or existed until recently - and as representing a viable alternative (Li, 1996:504). In the same way, a strong tendency exists to overplay community cohesion and downplay intra-community issues such as group dynamics and social differentiation. The question is however, whether one can assert that people in a specific setting have common interests and goals, and to what degree can one talk of a distinct community.

As pointed out by Leach et al.(1997:10), the assumption that community can be treated as static,

relatively homogeneous entities has identifiable roots to earlier social theory which conceived society as a bounded object or a closed social system. Notably in the structural-functionalist approach of the 1940's[5] and cultural ecology of the 1950's[6] social structure was seen to drive rules which governed people's behavior and maintained social order. Much in the same way as Berkes portrays local communities, societies were seen as functionally integrated with their environment, linked in harmonious equilibrium. Culture was perceived as having adaptive value to the general goals of living systems. Myths, rituals and symbolic systems were interesting because of the regulatory role they played in shaping land use and in ensuring that ecological and social systems remained in equilibrium (Fairhead and Leach, 1996:8). Social structure and institutions such as traditional authority were seen as maintaining this functional adaptation: often over and above the consciousness of community members (Leach et al., 1997:10 and Ortner, 1984:133).

Such functionalism[7], may also be found in much work associated with the preservation view. In the work of Runge and Berkes, for example, tradition is envisaged as a comprehensive set of binding rules (Li,1996:504), when 'traditional' societies are described as providing "mechanisms for the equitable use of the resource with a minimum of internal conflict or strife" (Berkes and Farvar, 1989:11). Likewise rules are seen as ensuring livelihood security by providing guaranteed access rights to vital resources so "that everyone in the community is assured of the opportunity to meet their basic needs"(ibid.)[8].

But although such idealized images of community have the advantage of parting with the image of pastoralists or other resource users, as prime destroyers of their own environment, these generalized representations have their drawbacks as they tend to close our eyes to other equally

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[5]Radcliffe Browne (1952) and Fortes and Evans-Pritchard (1940).

[6] Notably Roy Rappaport (1967) and Marvin Harris (1966) who sought to explain the existence of particular bits of particular cultures in terms of the adaptive and systems maintaining functions of these bits. As pointed out by Sherry Ortner, the interests shifted from how the environment stimulates (or prevents) the development of social and cultural forms (the Sahlins and Service version ,1960) to the question of ways in which social and cultural forms function to maintain an existing relationship with the environment (Ortner, 1984:133)

[7]See also the reflections by Salzman on ecological determinismin the introduction. Social institutions should be understood as contructions brought to an environment rather than behavior patterns generated by the environment (Salzman, 1997:161)

[8]A famous example being Rappaports account on energy streams from New Guinea. Here a small society (Maring) lives of their agricultural produce and raise pigs.The pigs live from garbage and from the agricultural products. If the number of pigs exeeds a certain number they will be competing with the human population for food. The Maring Kaiko ritual where largeamounts of pigs are eaten in a large feast therefore serves to prevent environmental degradation. According to this view culture is understood as behavior subordinated by the ecosystem. (Hansen og Kristensen, 1991:18-20).

important aspects of the commons.

a). Idealizing community of interest.

An obvious issue neglected by the image of the homogeneous community is the question of social differentiation within and among communities. Also the incentives of the villagers to cooperate is neglected. Incentives for collective action often vary widely between different members of a community as rural producers usually employ a whole range of different strategies when pursuing a livelihood. One reason for this variation is that natural resources used by villagers are both private and communal in character and (contrary to the underlying assumptions in Runges' version) the principal sources of agricultural income tend to come from crop production on individual holdings, not from the commons. As villagers are part of larger economies than those posited by Runge, individuals will in most cases have alternative income sources to often declining commons. In such situations steps may eventually by taken to develop private sources of supply. (Lawry, 1990:8).

If crucial issues, such as whose economic circumstances or security of tenure is at stake, are left unclarified enhancing the resource rights and the security of tenure of the community as a whole (as proposed by the "preservationists") may not work out as anticipated (Leach ,1991:18). In "real life" benefits derived from the commons are rarely equally distributed. On the contrary, the asymmetrical benefits from the commons tend to be underwritten by local power structures. The poorer segment of society who may be more dependent on resources held in common often lack a power base within the community from which to assert control. Therefore, marginal groups such as women might find their specific interests submerged by a community focus.

In fact, collective solutions are infrequent when the importance of the resource as income and the strategies employed by the users vary. Even in the case of grazing lands, where users have a common interest in the range, herders tend to have limited incentives to coordinate. Individual grazing strategies are dictated by a variety of factors, such as availability of herding labour, herd sizes and species composition as well as household characteristics and the relative importance of livestock production and remittances as income sources (ibid.:15). To this adds, that while the discourse of traditional property rights may privilege certain indigenous or "tribal" groups, other groups such as mobile pastoralists or migrants to marginal areas with little or no community cohesion are neglected (Li ,1996:505). These circumstances may contribute to reduce the stimulus for collective action. Greater competition, rather than enhancing collective action, may be the result (Lawry,1990:9)

Finally, scarcity does not, as proposed by Runge, necessarily lead to common property solutions, but may as well, as shown by Behnke (1986) from the Sudan, lead to "spontaneous privatization"

when individuals attempt to enclose the commons for private use. Similar privatization movements have taken place on the range lands of East Africa and Somalia. Whether private or collective solutions will occur depends first and foremost on the nature of the resources and the local social relationships in question.

b). Exaggerating the authority of traditional leadership

While incentives for individuals to participate in local management arrangements tend to be exaggerated, problems related to the, often weak, structures of local authority designated to enforce rules, or the role of leaders as catalyst in initiating cooperation, tend to be omitted.

With regard to extensive livestock and range management in Africa, centralized control has generally not been a feature of pastoral societies in Sub-Saharan Africa. As mentioned in the earlier chapters, independent, opportunistic decision-making is essential to successful livestock production in the Sahel. Hence most pastoral societies are characterized by high degrees of individual autonomy where no individual can tell any other members of his community how he should handle his animals. In many cases, local institutions will therefore be unable to generate sufficient sanction locally to enforce rules and restrictions of action. (Lawry, 1989:10)

c). Free riders and boundaries.

As common property is property defended against the outsider, the crux for common property management is how to counteract the logic of the free rider with the logic of the common good, worked out in collective rules for decision making and enforcement (de Groot et al., 1995:211). Hence, clear definition of boundaries is regarded as a central issue for determining the potential of common property resource regimes. "The more clearly defined the boundaries , the better the chances for success", says Wade (Wade, 1987, quoted from IFAD, 1995:119).

The establishment of clear use rights through delimitation of a "community resource space" has also been central in recent attempts to improve local level management in West Africa[10]. Similarly, the World Bank has supported efforts to produce social maps of traditional community land in, for example, Indonesia (Li, 1996:507).

As a framework for understanding local-level dynamics of resource use, the approach has significant limitations. First of all, most of the contributions are somewhat unclear as to how such a boundary should be understood, not to speak of how to delimit and control it. Ostrom, for

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[9] See also Ostrom, 1990:91-101 who deals at length with issues of membership delimitation and boundaries.

[10] Notably in the so-called Gestion de Terroir Approach (see Painter, 1994 and Degnbol, 1996).

example, states that 'shared knowledge', or 'shared culture' is of major importance for the establishment and defence of a common. But, as noted by de Groot et al. (1995:214), the explanations as to how cultural factors achieve this remain unclear.

Secondly, the focus is on the management of natural resources in a bounded and static resource action space.Thereby the use of natural resources across larger areas (potentially several terroirs) is omitted. Similarly it fails to recognize the multiple strategies used by people to gain access to exercise control over a broader range of natural and non natural resources over a much larger and changing action space (Painter, 1994:12).

Thirdly, the approach is primarily concerned with sedentary agrarian communities, thereby neglecting how (the same) resource spaces are used by different groups of users, among them more mobile communities such as pastoralists. Considering the porousness of African societies, it may turn out to be difficult to distinguish 'members' of a community from the outsiders from which they are supposed to protect their resources.

Fourth, the assumption underlying the argument for creation of boundaries is that a framework of rules can be devised based on the expectations and calculations of users and policy-makers about the stream of costs and benefits from the resources. In practice, however, these costs and benefits are difficult to predict, especially in semi-arid regions where the water resouces and biomass production fluctuate enormously (de Bruijn and van Dijk, 1995:25). And if it is weather rather than society that is decisive for the possibilities in use, the determination of clear boundaries becomes rather an academic exercise for the users involved.

Finally, such mapping and delimitation of the community sphere are not neutral. Rather they provide a perfect means for re-interpretation and re-alignment of local spheres of resource control vis-à-vis other villagers as well as foreigners. Therefore, when Bromley, Ostrom and others talk about the need for a well-defined membership and clear boundaries they forget that multiple interests are at stake even in the definition and interpretation of who is a legitimate member or user of the resources and who is not. This becomes all the more serious as these competitions are articulated in terms of competing representations of community itself.

In short, this vision evidently fails to understand the nature of most African societies. Dfot more than anything these are characterized by flexibility, mobility and a very broad resource base where producers shift between preferred resources as a reaction to internal and external change, adopting more mobile or less sedentary lifestyles accordingly (Niemeijer, 1996:98). This argument will be further elaborated later on in the chapter.

d). Pastoralists, boundaries and property regimes.

Obviously, the establishment of stable (but inflexible) resource regimes through delimitation of boundaries and strengthening local enforcement of exclusive right is particularly problematic in pastoral societies. Such societies are distinguished by mobile and opportunistic management systems (see previous chapter).

Recently van der Brink, Bromley and Chavas have tried to solve some of the above mentioned paradoxes by looking at the relations between herders and farmers in an economic behavior and property rights perspective. Inspired by the "New Ecology[11]" and its call for more flexible management strategies (Benkhe and Scoones, 1991[12]), these authors have tried to solve the free rider problem while at the same time maintaining spatial mobility among pastoralists as a strategy against the temporal uncertainty characterizing most pastoral environments (van der Brink, Bromley and Chavas, 1995:375-376). Unfortunately, the endeavour does not conclude anything very satisfactory, as the solutions appear largely cosmetic.

One reason for this is that, due to the effects of risk and uncertainty (namely the extremely variable rainfall pattern), the herder values property rights that ensure him spatial mobility rather than exclusive rights (ibid:376). Therefore exclusive rights to a particular production location do not exist among pastoralists.

So far so good. The range is then open access, one may presume, But No! This is not open access, they claim, because rights of access exist that are restricted to a well-defined number of property holders. Under open access, no coordination would exist, and the number of potential users could be unrestricted (ibid.: 377). The rights of access of herders are therefore defined as *nomadic non-exclusive rights* i.e. property rights that secure the profit stream of livestock production wherever such production takes place.

The authors depart from the correct observation that pastoral property regimes "do not attempt to establish exclusive rights to a particular land *per se*", and "display little concern with territorial identity or the defense of particular grazing areas, being more interested in rights of access to pastures water and salt for their cattle". But as the exact definition of the rules of access are left

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[11] The term assembles a varied group of researchers trying to establish a new understanding of Sub-Saharan rangelands which recognizes non-equilibrium dynamics as inherent to semi-arid ecosystems..

[12] See also previous chapter.

unspecified[13] it does not seem that the difficult questions as to how, why and when some potential users should be excluded or how to delimit and define membership, access rights or boundaries has advanced significantly.

Indeed the imperative for squeezing this relatively unrestricted form of landholding into the category of common property seems of limited analytical interest. Claiming that territorial exclusion is indirectly achieved when needed, by controlling access to crucially scarce factors, such as wells, does open our eyes to some of the means available to pastoralists to control access over resources. Nevertheless, it does not tell much us about the ways in which African farmers or herders actually acquire and make use of such key resources. Nor does it indicate much about the dynamics of tenurial change.

The sharp distinctions drawn by many researchers and policy makers between 'interest groups' - defined according to unambiguous and sectoral locations - as well as the sharp division between public and private [and we may add communal] have little empirical relevance in Africa, because the public and private sectors are interwoven, intermeshed and even indistinguishable (Gibbon from Berry, 1994).

As 'idealtypes', the distinction made by the common property theorists between the four of property regimes[14] may be a useful although restricted analytical tool. In practice, however, what one finds will often be a confusing mix of different systems, partly common, partly state control, open access and (eventually illegal) private control. And it seems that it is precisely in the paradoxes and conflicts resulting from these overlaps and from the creative ways that people realign and manipulate them that crucial features for understanding the dynamics of tenure and agrarian change may be found[15].

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[13] On page 377 they write: "We leave the exact definition of these rules of access unspecified to this point. Suffice it to say that such rules generally solve a cooordination problem, which in the empirical case of Sahelian pastoralists are typically solved in a common property regime. Under open access, no coordination would exist and the number of potential users could be unrestricted" (van der Brink et al., 1995:377). The issue is not pursued further on in the article.

[14] One the one extreme one finds the **open access regimes** i.e. where access is open and unregulated and open to anyone, on the other hand **private property** where rights to exclude others from use and regulation of the resource are vested in the individual. **Communal or common property**, in turn, refers to resources held by an identifiable community of interdependent users. These users may exclude outsiders while regulating use by members of the local community. Rights to these resources are unlikelly to be either exclusive or transferable, they are often rights of equal access and use. Finally ownership and management to resources held under **state property** are held exclusively by the state while, in many cases, use rights and access rights have not been specified (Berkes and Farvar, 1989:10).

[15] Hence it appears somewhat of an absurdity when Le Roy, Karsenty and Bertrand in order to develop more exact conceptions of tenure, than the usual 4 squared matrix propose a combination of in total 25 different forms of

The distinction made between private and communal as mutually exclusive - each giving rise to distinct resource management systems - tends to reduce the complex and varied patterns of interaction into predetermined categories. This precludes investigation of the fluid and dynamic nature of property relations and tenure institutions. As will be shown later on, property relations are neither predetermined nor fixed but are, just as social identities in terms of insiders and outsiders, etc. under constant debate. Rather, than an issue of responsible users defending a distinct territory against the use of (foreign) free-riders, rights to resources are the subject of constant social manoeuvering and ongoing debates over political and social identity in terms of difference and belonging.

e). Institutions and the role of rules.

Similar to the assumption that proper resource management requires a clear understanding of boundaries and membership, is the assumption that a clear and unequivocal framework of rules is the only desirable solution for defining access to resources. The analysis of institutions as producers of rules is therefore central to the analytical framework.

According to, for example, North, 1990; Ostrom, 1986; Bromley and Gibbs, 1989, institutions are seen as 'the rules of the game' while organizations may be thought of as the players, or as groups of individuals bound together by some common purpose and objective. According to some, organizations in fact only exist because there is a set of working rules or underlying institutions that define and give them meaning. (Bromley, 1989)

Inherent in this view is a tendency shared with earlier structural-functionalist anthropology to assume that rules and behavior are synonymous, and can be reduced to one another (Leach et al., 1997:25.[16]). This view has been contested in recent post-structuralist literature which criticizes its inclination to reduce human organization and consciousness to mechanisms for preserving equilibrium, thereby denying actors any conscious agency. According to this position, rules do not automatically determine peoples' behavior. In many situations, people chose or may be forced to countervene the rules, and such action - or non-action - may be important ways of challenging legal rules in order for people to gain command over commodities. Often such actions, which have been labelled 'unruly social practice'[17], contribute to contesting legitimacy, thus challenging prevailing power positions.

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tenure (Le Roy, Karsenty and Bertand, 1996)

[16] For a general critique see also Grannovetter, 1992

[17] This notion was developed by Thompson, 1971 and further elaborated by for example Scott, 1976 and 1985 and Gore, 1993 who have provided a substantial critique of the structuralist position.

A second criticism is a tendency to look at resource management institutions in a rather disembodied manner, as single purpose institutions. Institutions for the management of common property are, as stressed by Mearns (1995:6), much more than that. They are often based on kinship relations and co-residence and may have religious, ritual and other cultural dimensions. In the same way, the single human being participates in a multiplicity of institutional relations at the same time. This multiple belongingness of individuals in social environments requires that we take account of the embedded social context of natural resources management, rather than treating it as an activity in isolation (Peters, 1987:178, 1994: passim).

In order to give more attention to the role of human agency, it is necessary to distinguish between institutional rules and peoples' behavior and to clarify the relations between them. In this way we gain a more complete picture of the dynamics of institutional change. In short, there is a need to study tactics and strategies, not merely the rules of the game.

Finally, it is essential to consider dynamics over time and to see how, and with what consequences, sets of rules influencing patterns of interaction between resource users may change. Change must be regarded as an ongoing process of continuity and not merely as disruption.

The perspective on the relation between ecology and society offered by the preservation school reduces human organization and consciousness to a regulative mechanism for preserving an equilibrium. Hence the question of ecology becomes framed in such as way that peoples own understandings of their environment are silenced or re-interpreted in a manner which obscures the parameters of local struggles. In consequence, change is interpreted as disruption or breakdown and attention shifts from peoples' action and the way they handle their environment on to sterile studies of degradation.

The criticisms offered below have serious implications for the study of resources held under common property. Among other things, it questions previous assumptions that changes (or decline) observed in grazing areas held under common property are derived solely from outside intervention.Instead, it opens up for an understanding of change as resulting not the least from the active manipulation by local agents of rights to resources.

Fitting social dynamics into the study of common property:
Negotiated development

But if we discard the static image of homogeneous community, how can we study African economies in motion, in order to gain insight into the dynamics of resource access and management?

As emphasized above, models based on dualisms - such as private versus communal, individual versus society, self-interest versus altruism - fail to understand the paradoxes and conflicts of Africa's grazing lands. An alternative to this, is an interpretative framework which incorporates the historical processes, social organization and the structures of meaning (Peters, 1987:174). Such a perspective, stressing the need for seeing resource use as the subject of ongoing struggles, has been developed by a number of authors[18] who adopt a critical, culturally informed analysis of African rural development. These authors may be classified under the heading of negotiated development.

Central to the framework is an emphasis on human agency or praxis i.e the creative ways in which cultural ideas are adapted to new conditions and how culturally informed practices in turn, structure daily life and shape and reshape institutions at various levels. Drawing inspiration from, among others, Giddens and Bourdieu as well as from feminist literature, this view examines how distinctions such as gender, class, age, origin among others, shape the practices of differently situated and positioned actors within contradictory social relations (Roseberry, 1989:10). In doing so, concepts such as community are understood as political associations formed through processes of imagination and cultural creation - as the generation of meaning in contexts of unequal power (Roseberry, 1989:14).

The concept of negotiated development itself, refers to a situation where different groups come into contact with each other and try to lay claim to a specific issue. What is of interest is that, in this process of negotiation, old social groups tend to be recomposed or new ones created. Likewise peoples perceptions of the object of negotiation may change, just as the social relationships between the negotiating parties are changed during the process of negotiation (Sepällä, 1996:84). In contrast to Bromley at al., who place the emphasis on the finetuning of institutional arrangements, the actual object for negotiations may in fact be placed in the periphery of the analysis. What matters is the social groups and their perceptions. And, since different groups have different perspectives, their negotiation must necessarily entail contradictions and conflicts (ibid).

In line with the 'chaos theories' presented in the previous chapter, the negotiated development approach stresses multilinearity and resilience. If one feature changes, changes occur in the whole system. Hence, the negotiation process results in certain changes which have expected and unexpected effects requiring analysis."Negotiation is a metaphor, that emphasizes openness of interaction as far as outcome is concerned" (Sepällä, 1996:85).

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[18] This comprises a large group of rather different contributions concerned with studies of agrarian change (Berry, Guyer Carney and Watts, etc), local politics (for example Peters, Goheen), customary law (Sally Falk Moore, Michael Chanock etc) and ecology and society, (Leach, Mearns, Fairhead, Scoones, Shipton). Many of these have published in "Africa": the Journal of the International African Institute.

The indeterminacy of social formations

As a first step to pay justice to the complexity of reality (Peters), the variability in time and space of social relations must be acknowledged. Further, historical change must be recognized as the unpredictable result of different encounters rather than a unilineal, evolutionary process. Obviously, systems of common ownership are not identical in time and space. Therefore the historical and contemporary situation of communal range in Senegal must be grasped through the particular detail of its political and social organization and culture:

> *"Changes in commons (...) lie in the historically specific conditions that include the state, claiming authority over locally managed resources, the role of new technologies in changing patterns of land use and assessment of value for different categories of users and in the increased disparity in wealth and influence within a community of users which makes it more difficult to regulate use and enforce rules. The transformation of cattle keeping must therefore be regarded both as a social and a political process leading among other things to the readjustment or creation of hybrid forms of social formations"* (Peters, 1994:7).

What leads to change is therefore rather the complex interaction of environmental, economic, social and political factors operating in a given geographical setting. Together these factors set the limits as well as offering opportunities for change. Within this broad framework, collective and individual creative choices lead to specific subsistence patterns that change over time as constraints, possibilities and choices change (Niemeijer, 1999:93). Indeed, it is precisely the acknowledgement of local variation and of the historical development of relations between land and group that enables an understanding of economic life as a creative process that can take many forms, as the unpredictable result of different encounters.

Just as the natural environment of Sub-Saharan Africa can be characterized by its unstableness and irregularity, so can the social environment. As mentioned above, this is often overlooked by those advocating the re-establishment of more or less imagined local resource management institutions with clear and stable boundaries. Hence a central point is missed as to the incentives to establish firm boundaries and to exclude foreigners.

Boundaries are difficult entities to operate with in relation to African societies. As shown in the previous chapter, African societies[19] tend to be porous and many societies have mechanisms which allow individuals or groups to modify their identity and transgress ethnic boundaries.

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[19] See also Tania Murray Li 1996.

In his essay on what he terms "The Internal African Frontier[20]", Igor Kopytoff shows how African social groups show a considerable tendency to fission and segment. Population movements have been brought about by famine, civil wars, ethnic rivalries, despotic regimes and conflicts between polities. To this we must add innumerable local movements to local frontiers- movements of more modest scale but of great systemic importance in the shaping of African cultural history. In all these instances, displaced Africans have had to face the problem of forging a new social order in the midst of an effective institutional vacuum[21]. As a result, the formation of new social groups has been a constant theme in the histories of African societies (Kopytoff, 1987:18).[22]

This ceaseless flux among populations has, according to Kopytoff, made Africa a 'frontier continent', the stage of population movements of many kinds and dimensions, where populations in comparison with other continents are relatively recent occupants of their present habitat. This has given rise to a continuing reorganization of ethnic identities, and what Kopytoff terms a frontier-conditioned ideology (ibid.:7).

In consequence of the low population densities and the high levels of mobility an important structuring principle is for example the rights of the first-comer. Being the first-comers gives certain rights of seniority, as it gave one the right to show the place to those who came later (ibid.:22). Hierarchy was established where first-comers in principle could claim superiority over newcomers (ibid.: 31). Nonetheless, this remains a fluid relationship. There are many examples of situations in which immigrant founders who took over local political systems and remolded them to their own purpose by skillful political manoeuvering. Furthermore, the principle of precedence -which ties first-comers to late-comers in to a chain of hierarchy- represents in itself a paradox, as no one can ever claim to be really the first (as shall be seen in the Ferlo case).

Consistent with this mobility and flexibility, Kopytoff identifies a relative indifference among Africans to rootedness in physical space and a lack of permanent attachment to a particular geographical place. "African space is, above all, a social space" he claims, their roots being

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[20]Kopytoff draws on Frederick Jackson Turners famous thesis of the frontier ideology which he assigned a major role in the shaping of the American political character.(Kopytoff 1987:3)

[21] I'm not so sure of the expediency of talking about an effective institutional vaccuum. In many cases of settlement some institutions have already been in place and it has more been a question of remolding and merging of existing structures, than of creating new ones.

[22] According to Kopytoff several cultural principles and cultural mechanisms were behind these centrifugal forces among others two contradictory principles: that authority in the kin group lay with a gerontocracy that controlled its collective resources and often used it at its own advantage (ref Meillasoux) and the conflicting principle of essential equality of members in a corporate kin group. This principle is not an egalitarian one, but rather one of equal potentiality, embodied in the equality of potential access to authority. The co-existence of two principles of hierarchy and essential equality between members easily lead to resentment by the younger members of the unarguably legitimate yet anoying authority of the elders (Kopytoff 1987:18).

primarily conceived in a kin group, in ancestors and in genealogical position (Kopytoff, 1987:22).

Much in the same vein, Goody (1971:30) has argued that African societies have usually faced a shortage of people rather than of land. Abundance of land allowed them to secure their livelihood by mobile and extensive exploitation of the land, through shifting cultivation or pastoralism. The political consequence of this has been that chiefship has tended to be over people rather than over land; and these the leader had to attract as well as restrain. The drive to acquire adherents and dependents and to make alliances and keep them attached to one-self as a kind of political and social 'capital' is, according to Goody, characteristic of African political processes. Like Kopytoff, Goody emphasizes the social space rather than geographic control and stresses the general lack of a rigid rootedness in physical space.

The search for adherents as a source of power is also stressed by Peters, Goheen and Berry. In many African societies, a person's status and influence depends directly on the ability to mobilize a following. And if access to resources and opportunities depends on one's ability to negotiate over property rights, production or exchange and influence is enhanced by followers, then it is not necessarily advantageous to exclude people from social networks, even if these networks also serve as channels of access to resources (Berry, 1993:15). Consequently, people may be more interested in keeping options open than in cutting them off, a factor which might explain the relative reluctance or lack of incentives for excluding foreigners found in many settings. Frequently, interests are ambiguous and give rise, as will be shown in the Ferlo case below, to both exclusive and inclusive strategies of social mobilization and resource control.

With this indeterminacy in mind, it should be obvious that it is not possible to explain the fundamental features of an existing social order from what can be seen here and now, as do the Common Property adherents. Nor is it possible to treat the workings of a system as isolated in space and time. Such simplifications do not relate the actual realities of social life and therefore are not meaningful. Quite on the contrary, it is precisely many of the features presented above that have provided some of the constants on which on-going social relations rest and on which any new social relations are built (Kopytoff, 1987:39). This fundamental indeterminacy of African social formations is stressed by Peters, Goheen and Berry who emphasize that the social construction of economic life must be seen as a creative process, whose end is not given beforehand. The social construction of economic life can take many forms. These forms are not necessarily successful, depending among other things on the ability to create some rudimentary order in competing claims and rights.

The embeddedness of social institutions.

Contrary to the NRM/Common Property framework which conceives of resource management

institutions as single purpose, well-defined rule-making authorities, the negotiated development view stresses the need to see institutions as socially and politically embedded, emphasizing their contingent and indeterminate character. Hence, institutions are seen as regularized rules of behaviour that emerge from the underlying structures or sets of 'rules in use'.

Arguing for the embeddedness of a commons helps to avoid falling into the polemic extremes of the transformation view which, according to Peters: "casts its lot with the individual actor, the social realm being at best but a context in necessary opposition to the individual's self-interest or the "models of an idealized past". It also avoids the extreeme of the preservation view that casts its individual as non-actors, only a figure inscribed in the hidden logic of an eco-cultural system" (Peters, 1987:178).

Understanding commons as socially embedded means emphasizing the interdependence of decision-makers. In this way the institutional dimensions of individual action is incorporated. By looking at the structures of relations, the distinctions between groups and the shared or competing meaning and value attributed to a particular commons and its use it becomes possible to avoid the unattached, autonomous and asocial individual on the onbe side.On the other side,it also becomes possible to avoid the view of the undifferentiated, homogeneous and harmonious community. In doing this, the contemporary situation of the commons may be described not by absence of links between the individual herder and the group, but rather as a result of competing rights and multiple claims to legitimate use. Such rights are, as will be discussed in further detail below, not only embedded in specific historical sets of political and economic structures, but also in cultural systems of meanings, symbols and values (ibid).

Structures, rules and norms are thus seen as maintained by (and only existing because of) peoples' active investment in them, through practices and actions, both intended and unintended. These structural forms subsequently shape peoples actions, not by strict determination but by providing flexible points of orientation which may either constrain or enable what is possible23. But, whilst some routinized actions serve to reproduce structures, rules and institutions, others have agency, serving to change the system and perhaps in time remake the rules (Leach et al.,1996:11 with reference to Giddens, and Long and van der Ploeg). In this way, history may be seen as a manifold process of interaction between external and internal actions in which contingencies and path dependencies play a significant part (ibid.:11).

Rather than existing as a fixed framework, as anticipated by the Common Property School, the negotiated development view perceives rules as being constantly made and remade through

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[23]Transactionalists like for example Barth have been criticised for portraying social life in terms of active decision making and strategizing by people with free choice (See Ortner, 1984:146)

peoples' practices. In order to discern how, for example, rights of access and control over resources changes over time, an understanding of 'rules in use' based on analysis of peoples, regular everyday practices is required. Such a conception stresses difference and the appreciation of power relations. (ibid.:27) To "trace peoples multiple, sometimes contradictory and ambivalent actions and experiences" as proposed by Berry (1994:33) may therefore turn out to be a fruitful way to gain insight both into the dynamics of institutional structure and of the fluidity and complexity of institutionalized rules and practices.

Power, wealth and meaning.

Central to contemporary discussions of agrarian change is to investigate how land use is shaped by the dynamics of resource access, use and control; relating these to questions of social form and process. Disputes and negotiations about land are therefore, as stressed by Shipton and Goheen, not only about particular tracts of lands, but also about the very meanings of the lands itself and of the customs and conventions by which humans relate to it. Hence, three perspectives are sought integrated: the political, the economic and the cultural. This, acording to Shipton and Goheen (1992:397), means bearing in mind three kinds of human ambitions: Power, wealth and meaning - and looking for the linkages between them.

This perspective enables us to highlight that people use land for many purposes: not just to produce the material conditions for survival and enrichment, but also to gain control over others and define personal and social identities.

Although coined somewhat differently this is analogous to the three primary roads to social analysis suggested by Sally Falk Moore: via relations, via resources, and via 'representations' (Moore, 1986:9). As these dimensions are present in every institution, in every social field and in every social situation, although in variable and complex ways, an approach made in terms of these dimensions opens the possibility of analyzing dynamic shifts in their patterns, content and connections over time (Moore 19986:9).

Shipton and Goheen propose an analysis of changes in resource access and control to start by posing three simple questions:
1). What does land mean, to whom?
2). What kinds of social affiliations affect land use and control?
3). Who controls the terminology?

Ad 1). This question stresses the heterogeneity of the user groups as well as the different use made of resources by different groups. Not all groups perceive the land in the same way. Resources that are valuable for some are not important for others, just as the groups of users may vary according

to seasons. Thus, on the same piece of land, people may hold different rights to different resources in different seasons[24].

The categorization of land and its resource may also be the subject of different interpretations. For transhumant herders, the routes traversing a certain piece of land may be more important than the actual grazing potential, just as farmers may be less attached to a particular piece of land than to the right to farm in an area. Likewise people may be less attached to fixed points on the ground but rather understand their rights "as elastic spaces on a rubber map"[25] , defined in relation to other kin and neighbors (Shipton and Goheen, 1992:309). The meanings attributed to land therefore vary as part of the struggle for control: as, for example, when fallow lands or lands with absentee owners are, for purposes of contestation, classified as vacant by other potential claimants.

Ad 2). As mentioned above, rural African do not generally hold land as individuals and power over land is largely a function of membership in social networks. Hence it remains contested and negotiable. As described above in discussing the indeterminacy of social formations, the social networks through which people pursue access to resources and opportunities have not been consolidated into closed corporations which act to exclude outsiders, as suggested by the transformation and preservation approaches. Instead they continue to operate as arenas for individual accumulation and mobility. For, in order to gain sufficient authority to enforce exclusive rights, it is crucial to expand the number of supporters. As stressed by Berry (1994:104), authority rests partly on inclusionary strategies which are undermined when authority is used for exclusive ends.

A fascinating insight into the challenges related to dealing with such networks of political and social alliances is provided through Pauline Peter's accounts of the establishment and partial privatization of boreholes and range in Kgatleng, Botswana. Here, as elsewhere, the authority of the Tswana elite depended on their ability to construct working compromises and alliances. These were, in turn, based on the expectation of reciprocal benefits among persons of unequal status. Obviously, this facilitated the reproduction of privilege, but it also provided space for the more disadvantaged, as poorer families were incorporated in the borehole syndicates and thereby granted access to pastures and pastures. Such patterns of spreading economic advantage has remained a significant dimension of the political economy of water and rangelands as well as of broader district and national politics. (Peters, 1994:74).

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[24] These hierarchical and multi-usage dimensions of tenure have been dealt extensively with by Bruce (1988a and 1988b)

[25] This classic example is provided by Bohannan from Tiv. For a more 'poetic' exposé see Chatwins account on the australian aboriginals in "Songlines". See also Ingold, T. 1986: "The appropriation of nature" for a discussion of territoriality and movement,

As highlighted by Peters, the existence of networks based on both inclusive and exclusive strategies does not preclude differential access to resources. On the contrary, the question of who gets the power to interpret and define the meaning, not just of the land *per se,* but also of the group itself, is central. For, as noted by Leach et al. (1997:23), how people gain influence on decisions regarding resource allocation and resource distribution must be understood as the outcome of negotiations between different social actors involving power relations and debates over meaning, rather than the result of fixed moral rules encoded in law.

Another important issue highlighted by the Botswana case, is that transformation of the land in terms of, for example, the ongoing process of privatization of the Botswana range is as much the result of the manipulations of the 'commoners' themselves, as a result of outside interference as proposed by the preservation view.

Rather than treating state interventions as obtrusive, Berry and co. stress that the presence of the state has been intrusive rather than hegemonic, and that rural producers have entered negotiations with their own agenda, and have had the power to manipulate the outcome or partially withdraw from social processes which they perceive as unfavorable. (Berry 1993:48)

In their interrelations with the state, rural dwellers often 'straddle' between formal and informal institutions in an effort to diversify their options and maintain flexibility in the face of uncertain opportunities and constraints. According to Berry, the result of this is neither effective state control over the countryside, nor an uncaptured peasantry. Rather it is a situation of multiple linkages between farmers and states which affect patterns of resource allocation and agricultural performance partly by encouraging mobility and diversification of networks and income sources (Berry 1993:66).

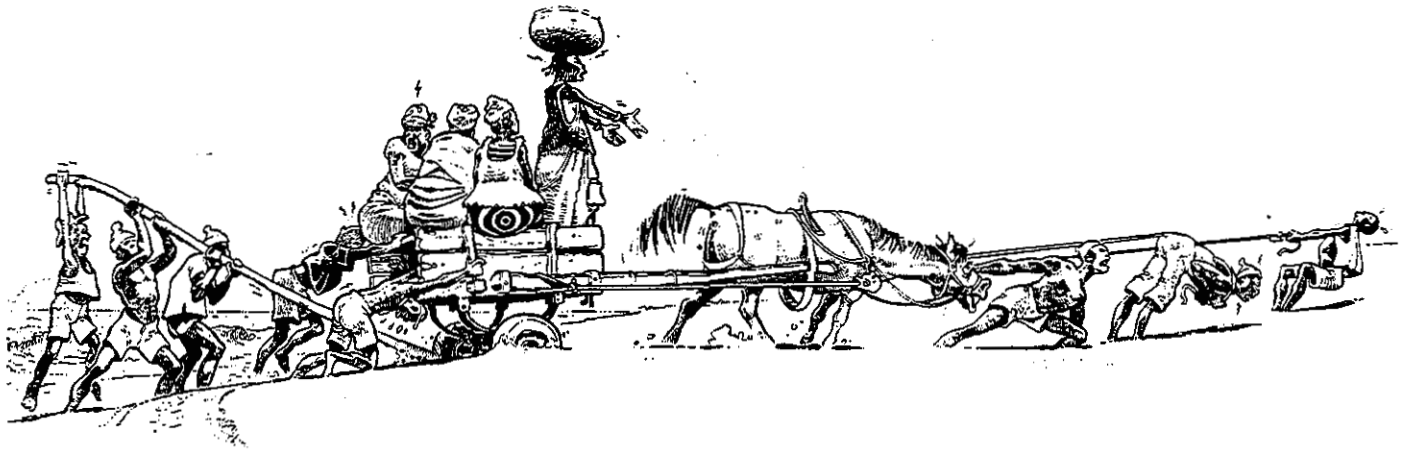
In such structurally unequal relationships power can always be contested. Hence, people do not passively submit themselves to external interventions in terms of projects, plans and regulations. Rather they acquire or pick up the current discourses and transform them so as to fit into their own interests and goals. Obviously some will be in a better position than others to present local problems in such a way as to reflect their own resource priorities. It is therefore also important to focus on differentiation as such claims not always are identical to those of the rest of the community.

ad 3). As stated by Berry (1988:66), struggles over meanings are as much a part of the process of resource allocation as are the struggles over surplus or the labour process. In the context of struggles over resources, multiple conflicting discourses arise and different visions of community are articulated. Such representations are important as they form part of what may be termed the practical political economy through which different parties defend their interests and advance their

claims (Li, 1996:503).

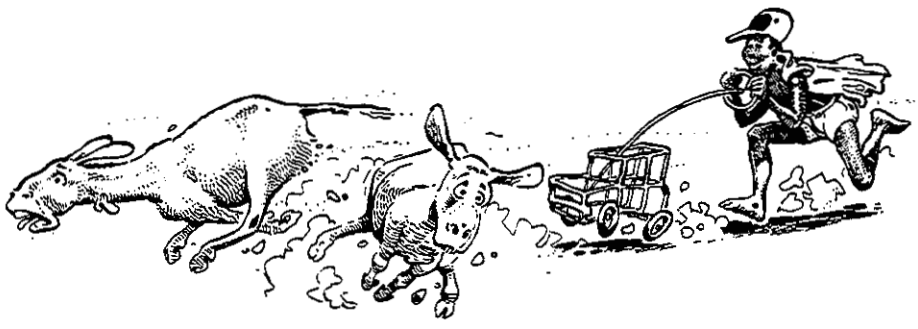
Hence, processes of transformation commonly involve contestation and revision of the meaning of key terms such as property and community. Images of community, for example, are central to questions of resource access at the local level: not because of guaranteed rights provided by rules and traditions (as proposed by Runge) but because it provides a "culturally available point of leverage in ongoing processes of negotiation" i.e. a vocabulary of legitimation (Li, 1996: 509).

Returning to the issue of boundaries, a lucid example of such (re)interpretations or 'struggles over meanings' is given by Pauline Peters when showing how the administrative requirement of a minimum distance of five miles between boreholes has led to the interpretation, that an area of approximately five square miles belongs to each borehole. Furthermore, technical processes of measuring and mapping of areas surrounding the boreholes obviously give support to the notion among borehole owners that a right to land is as much as a right to the water that has been allocated to borehole owners. (Peters 1996:111) As will be shown below, similar processes can be observed in Senegal.



Chapter 4:

Post drought migration and technological innovations.



Chapter 4:
Yerim Sow, Barkedji: " The drought enabled herders to get acquainted with new pastures"

In March 1989, when I first met Yerim Sow and his family, they were living in a temporary camp north of the borehole at Velingara. The family had no hut, and their scattered belongings were either attached to the branches of the few small acacia trees encircling the camp or placed on a rack made out of branches in order to keep them out of reach of the lambs and kid who were toddling peacefully around the camp. The family had stayed in this camp less than a week. Before that they had camped at two other localities at a distance of around 1 kilometre from one another, three months at the first camp and one month at the second. Because of the frequent movements, the wife had not yet begun the arduous work of constructing a grass-hut. There were just some mats in the shade of a few scattered trees.

Although moving throughout the year, camping in the area around the deep well at Velingara was unusual for Yerim Sow and his family. They normally restrict their area of movement to the north of the Barkedji borehole. In the year 1989, however, the gazetted forest of Barkedji-Dodji had been ravaged by large bush-fires and the family had preferred to move 40 kilometres further south, where pastures were still to be found. Before the rains started again in June-July, the family was likely to move their camp another few times before returning to their usual wet season encampment in the Barkedji-Dodji forest. The frequent movements of the camp was part of the dry season mobility pattern which the family had pursued since its arrival in the area following the droughts.

Yerim Sow and his family originate from Ganina in the *Kooya,* some 50 kilometres south of the Senegal River Valley. Here the herding system had been fairly sedentarized. In years with plentiful rains animals could be watered throughout the year at shallow wells. In other years they were taken up to the Senegal River. When the deep well of Ganina was constructed in 1969, movements were restricted to occasional visits to the salt licks near Lac de Guiers.

When the first drought hit in 1973, the family moved south to Velingara, where they stayed at different locations until the rains resumed and they were able to return to Ganina. But as noted by Yerim: " The drought enabled herders to get acquainted to new pastures". Already in the dry season of 1975 the family decided to spend the dry season in Barkedji. The next year the rains failed and the family stayed in the south and did not come back to Ganina before the rainy season of 1977. In the following years transhumance was not possible.

With the second drought 1983/84, Yerim's son moved south with the sheep and goats while Yerim stayed back with the cattle. But when they returned in the rainy season, the pastures where so poor that the family decided to move south with the entire herd. From then on they have restricted

their normal radius of movement to the forest of Barkedji-Dodji, oscillating between a wet season camp located besides a large pond approximately 20 kilometres north of the borehole of Barkedji and several temporary dry season camps closer to the water point. Every year, at the end of the dry season, the family goes on a shorter trip southwards "to meet the rains" i.e. move some 20-40 km's southwards where the rains have set in earlier to ensure fresh fodder as early as possible and to "shorten e dry season". They usually return to the wet season camp within a few weeks, but the late return makes it difficult to embark on any agricultural activities.

The family consists of Yerim, a tall and bony elderly man whose working abilities were seriously reduced by an accident with his horse-cart in 1988, his wife, their only son, his wife and their 4 children aged 1 to 10 years. There is also a niece, who undertakes part of the herding and the water transportation. The family has a serious shortage of manpower and, usually, a salaried herdsman is engaged. This is however a rather unstable workforce since, according to Yerim, he often runs off, sometimes with a few animals, leaving the rest to roam around unguarded in the forest. Due to shortage of manpower, Yerim has not undertaken longer transhumance trips in the last 7-8 years.

In contrast to most of his kin, Yerim spent even the dry year of 1991-92 in the Barkedji-Dodji forest. Due to lack of manpower, the family had waited too long to move. The animals got sick and weak. Moving them would have resulted in considerable losses. Instead the family invested all their manpower in limiting the energy losses of the animals. Instead of sending the animals on the long trip to the borehole, they were watered either at shallow wells[1] where small amounts of water is "fished" out of the dry river bed with a 2 litre can tied to a stick - like a fishing rod - or by bringing water out to the camp from the deep well by donkey cart. This very time-consuming watering method obviously reduced the amount of time the animals could spend grazing. The heavy labour input required by this system was however partly compensated by the absence of other herds competing for the meagre fodder resources in the area. Nonetheless, losses during the dry season of 1991 were considerable. But, according to the estimations of the head of households, they would have been far greater had they left while the animals were weak. Sparing the ewes for the long trip to the well also limited the number of abortions.

In spite of very serious difficulties during the years I visited them, the family has, nonetheless, fared well. As mentionned in chapter 1, it is impossible to get an accurate picture of the number of animals owned by the family before and after the drought. Nonetheless herd development between 1989 and 1996 appeared to be reasonably successful. In this period the herd increased from approximately 500 head of small stock and 44 head of cattle to approximately 900 sheep and goats and 120 head of cattle.

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[1] *Bulli* in Fulani and *céanes* in French, are holes of 2-3 meters dug into humid depressions. The brinks are usually reinforced by interlacing branches.

When Yerim first settled in the Forest of Barkedji-Dodji, he made a courtesy visit to the neighbouring village of Belkagne, to inform the village chief of his settlement in the bush some 10 kilometres east of the village. According to Yerim, this was taken badly by the village chief and initiated a relation of perpetual disputes between them. The village chief, however, had no authority to keep the newcomers out of the area. On the contrary, the newcomers could back their rights of occupancy under the law on the National Domain which stipulates the rights of any Senegalese to settle in areas under state ownership. Over the years Yerim has invested quite a lot of effort (as well as sheep) in maintaining good relations to shifting *sous-préfets*, the administrative officers in charge of the area. Nonetheless, the status of his 'village' and its location within the boundaries of the gazetted forest is a matter of constant effort.

Yerim's settling in the forest of Barkedji-Dodji soon attracted a number of other herders from the Fuuta, the majority of whom were his kin. Being the first 'permanent' occupant of this bush area, he acquired status as a 'village chief' for the scattered group of newcomers of his kin group, a position which was later recognized more or less officially by the local administration. This recognition was, as will be discussed in chapter 5, not without it's contradictions.

Bathil Ba, Ranerou:
"The Firstcomers don't want us here, they are just waiting for an occasion to get rid of us".

When the drought hit in 1973 Bathil Ba lost his entire herd, which was said to be of moderate size. Bathil, however, had married the daughter of a very rich herder who was able to advance her part of her future inheritance to provide the means for the survival of the family. The exact size of this remittance is not known to the author.

Bathil had quit the area of Kasskass in the *Waalo* shortly after the drought had set in, but returned to Kasskass where he combined livestock rearing with flood recession and rainfed agriculture. By 1977, however, he left the *waalo* and spent the following twelve years moving around the deep-wells of Djagueli, Louggere Tioli and Ranerou on the southern fringe of the Ferlo. At the time of our first encounter, he had limited his movements to the vicinities of the deep-well of Ranerou, moving seasonally between different camps in the area. At a certain moment Bathil Ba had even taken-up cultivation, an occupation which was later given up due to meagre results and shortage of manpower.

In 1989 we estimated his herd (formally belonging to his wife) at 500 head of smallstock, primarily sheep, and 40 head of cattle. In 1996, on our last visit, the number of sheep had increased to around 1200. In 1989 Bathil went on a pilgrimage to Mecca, a symbolic action directed, not least, at displaying his prosperity to his neighbours and kin.

Apart from his temporary venture into agriculture, Bathil has no occupation apart from keeping his livestock. On some occasions, however, he is consulted for possessing certain '*connaissances peuls*', a quality which presumably is testified by his current prosperity. In spite of having left the *waalo* more than 20 years ago he still holds rights to his lands on the flood plains near KassKass, a claim which he recently attempted to renew[2], as the land was to be included in an irrigation project.

Bathil has a relatively large family which, apart from his wife, consists of 4 daughters and 3 sons of which the eldest (twins) were 13 years old at the time of our first encounter. Bathil employs 2-3 salaried herders whom he treats well, reason for which they stay with him longer than is the case in other families. Although he normally restricts his movements to around the well at Barkedji, he had no major problems in moving 100 km's south to Loumbi Aly Thedy near Payar, when the rain failed in 1990/91. But the trip was hard and expensive, both in animal losses and in bribes and watering fees at foreign wells.

Although he has been in the area for almost 15 years, Bathil does not have very warm relations with the leading group of herders in Ranerou. On several occasions he has been brought to court after having been involved in fights with members of the well committee in Ranerou who have tried to limit the access of foreign herds to the drinking troughs.

Some introductory remarks

The two cases cited above are representative for many of those herders who were forced to move southwards. Characteristic for these herders was that they gave up a fairly sedentarized lifestyle, often involving important agricultural activities in the Senegal River Valley. Most of the herders started out with a period with no fixed abode, but after a while they limited their radius of activities in years of 'normal' precipitation to the vicinity of a single borehole. Characteristic of these herders is that a high degree of mobility is maintained during the dry season.

Another particular trait of these herders is the specialization in smallstock, notably sheep. Based on very elaborate cost-benefit analyses a variety of strategies are employed to ensure high reproduction rates. First of all, considerable amounts of labour is invested in sheep rearing, a strategy which has proven to be extremely successful. Distinctive for this group is furthermore that they consider themselves, and are considered by the indigenous population, as outsiders. Hence, they may be forced to employ other means than the insiders to gain their rightful access to resources. In short, the movement into these new areas has provided new opportunities as well as new constraints.

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[2] He tried to get his sons and daughters registered as rightful owners of the land. It is not known whether the attempt was successful.

Perceiving drought in a more open-ended perspective.

Senegal, and particularly the Ferlo, are drought-prone areas. Droughts occur relatively frequently, although with varying strength. As mentioned in the introduction, it is not fruitful to perceive of drought and drought-related migration only in terms of crisis and socio-economic decline. Instead adopt a more open-ended approach must be adopted. In this approach, drought may be comprehended as an opportunity for experimentation and change both, in production patterns and in social relations i.e. understanding drought as a revelatory crisis.

As droughts vary in strength and effect, it may be useful to distinguish between droughts acting as 'watershed events' and drought acting more as 'events of articulation[3]'. The severe droughts of 1972/73 and 1983/84, were watershed events, where changes in meaning and practice reached a point where it became obvious that pre-drought production patterns would not return once the rains resumed. In contrast to this, the dry years of 1991/93 had more the character of an 'event of articulation', in which opportunities for questioning existing power structures and of adjusting them to the new emerging order were enhanced.

The present chapter deals with the profound effects which the two large droughts of 1972/73 and 1983/84 had on the production systems in the Ferlo. It is therefore primarily concerned with the watershed effects of the drought in terms of the changing practices of herd and pasture management. The changing structures of authority over land which this has entailed will be treated in depth in chapter 5. Here the processes of political adjustment are uncovered through an analysis of drought conceived of as an event of articulation.

The aim here is to analyse the effects that the arrival of a large group of herders had on the production systems in the southern fringe of the Ferlo. Surprisingly little has been written on the profound but to a large extent unexpected changes which the herding systems of the Ferlo region have undergone during the last twenty years. Data material for the analysis is therefore mainly based on my own case material, collected in the Ferlo between 1989 and 1995. This data material comprises both in-depth interviews with a large number of herders and representatives from the state administration and the extension services, and more quantitative data such as questionnaire surveys and mapping exercises. This data is examined in order to reveal the logics of the new herding strategies put into effect by the intruding herders and to analyse the impact of this on the resource management system of the area[4]. Throughout the analysis, these findings will be

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[3] See Sally Falk Moores distinction between events with diagnostic qualities and events of articulation (Moore 1994:365). See also chapter 3.

[4] As the objective here is to analyse the effects of the drought-related migration on the access and control over the natural resources in the Ferlo, rather than to document the functioning of the new herd management strategies, not all this material is presented here.

confronted with the myths and narratives discussed in chapter 2: notably the perception of degradation and productive decline as the neccessary outcomes of drought and increased population pressure, the understanding of range degradation as resulting from external intervention in an otherwise stable environment, and the image of pastoral societies as 'traditional" and unable to adapt to the new conditions unless helped by external interventions.

The local context

Before passing to the recent history of post-drought migration and rehabilitation, it may be useful to briefly recall a few features of the history of the Ferlo region that are relevant for this project.

Pastoral rangelands, such as the Ferlo region, are often analysed in terms of their economic, political and social marginalization. This is illustrated through the continuous loss of rangelands due to insecurity of tenure and agricultural encroachment and the neglect of productive investment in infrastructure by the state.

Continual loss of rangelands and insecurity of tenure are also characteristic of the situation in the Ferlo. Nonetheless, productive opportunities in the Ferlo have expanded tremendously during the last 40 years. In fact, the recent history of the Ferlo region is best understood as a simultaneous process of diminution and enlargement. The physical diminution is the result of a continuous squeeze on the pastoral zone from agricultural encroachment. At the same time, however, the digging of wells and improved conditions for mobility have provided new production opportunities, enlarging, so to speak, the pastoral area from within. This situation has profoundly altered the relations between the wetlands of the Senegal River Basin, the "*waalo*", and the dry hinterlands, the "*jeeri*". In this way, even the early history of the region dismisses any stableness of the environment or inability to adapt to new conditions.

Landscape as a largely anthropogenic creation

Chapter 2 introduced the mainstream perception of the environment as being largely in equilibrium. According to this view relatively stable conditions outside the system would allow the internal processes of the system to equilibrate and regulate system structures and dynamics.

According to the records of the early French explorers, the Ferlo region was, by the end of the last century, covered with dense forest. According to the chronicle of Lieutenant Monteil of his exploratory journey in the Ferlo in 1879, the Ferlo was a park of forest so dense that it in places was impossible to advance without first burning off the bush. (Monteil in Pouillon, 1990). Furthermore, large mammals such as elephants, girafs and crocodiles could be found in the area.

Today the Ferlo is characterized by open grasslands. Fine-leaved annual grasses such as *Schoenfeldia grasilis, Cenchrus biflorus, Dactyloctenium aegyptium* and *Aristida mutabilis* are the main components of the herbaceous layer in most of the area. To the south and east some taller grasses such as *Pennisetum pe dicellatum* become more common (Hanan et al., 1991:175). Tree cover canopy is less than 5% in the north, increasing to 15-20% in the south and south east (Marks and Faye, 1990),as the soil structure changes from sandy soils overlying stabilized dunes in the north and west to gravelly rock and laterite plateaux in the south and east (Hanan et al.). Wildlife is reduced to a number of antilopes and jackals while, in rare cases, a solitary ostrich may be observed. This situation has, by many development practitioners and scholars, (for example Touré, 1986 and Barral, 1982) been interpreted as a sign of severe degradation, due to increased dissecation of the climate combined with the effects of overgrazing.

According to recent findings, this biological structure is not the outcome of recent degradation, as presumed in current development discourse. Rather, it results from a long term construction/ modification of the landscape conditioned by human intervention, sometimes the active outcome of management sometimes unintended consequences. In the Ferlo, as in the rest of the western Sahel, "the mixing of animals and plant species of the desert and savanna eco-zones have been, in part , the result of long centuries of human land use practices whereby livestock herding and agricultural practices have produced a derived natural environment" (Webb, 1995:3)

Indeed the recent forest cover of the region seems to be a largely anthropogenic creation. When the first colonial administrators arrived in the area by the turn of the century, large clearings were frequently interspersed with the wooded landscape. Along the River Valleys of the Bounoum and the Ferlo, forest cover was largely replaced by fields, a visible sign of the grain export to the desert economies of the North (Freudenberger, 1992:84,85).

The pastoral Fulanis also contributed to the change in the landscape. Livestock grazing and field crop cultivation by herders transformed the tree cover from one in which broad-leafed trees (*Sclerocarya birrea* and *Pterocarpus lucens*) dominated to one where hardy, short leaved species such as *Acacia raddiana* and *Balanites aegyptiaca* were more prominent (Benoit, 1988:106; Freudenberger, 1992:98). The dense stands of *Acacia senegal*, so appreciated by the colonial administrators for their valuable production of gum arabic, are not reminiscenses of pristine vegetation but result from this "humanization" of the area by its pastoral population. In the same way, fires designed to clear the grasslands and forests of disease vectors such as ticks and at controlling the population of wild animals encouraged the development of fire tolerant-tree and grass species.. In many cases these species proved more palatable for livestock than the previous vegetation.

Hence, pre-drought Ferlo was far from the image of a pristine or virgin forest which had been

depleted within recent history through the invasion of unprecedented numbers of livestock. It was an environment already moulded and transformed by human intervention. And albeit "disturbed" by human intervention, these transformations contributed largely, not to degrade, but to improve the productive potential of the area.

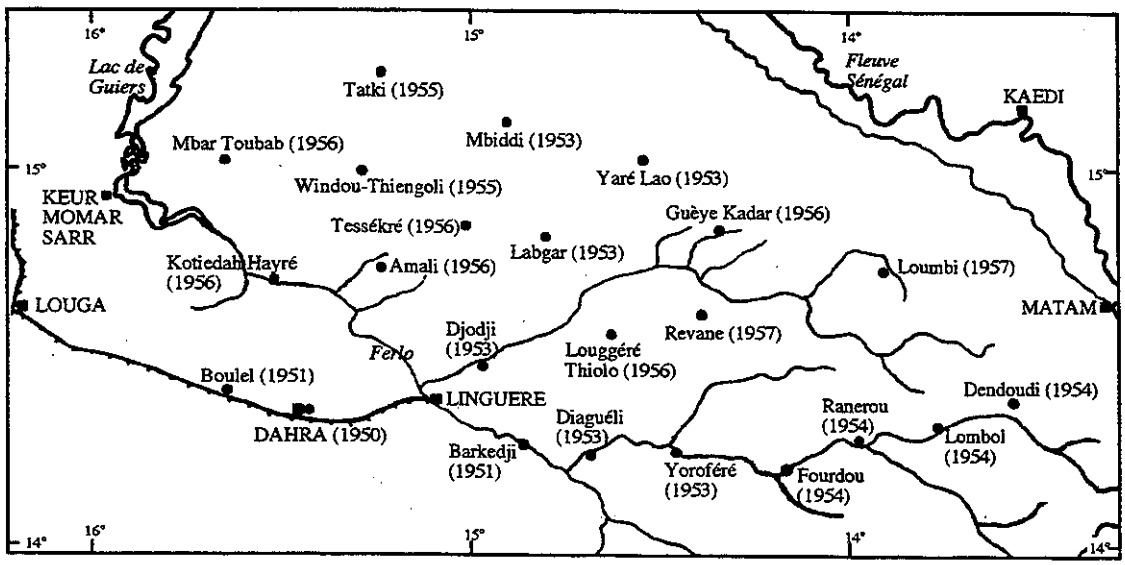
Nonetheless, human intervention in the interior of the Ferlo was, until the end of the 1950's, limited to a the few months during the rainy season. This situation was completely altered when the colonial administration started its drilling programme in the pastoral Ferlo.

The borehole revolution.

Access to water has been the structuring element in the history of the Ferlo. Until the 1950's, the area was largely inaccessible during the dry season due to lack of water. Only a few artisan wells existed, and the vast areas of the interior Ferlo was exploited only occasionally by black Maures engaged in the collection of gum arabic.

In 1937 a large fossil acquifer was discovered covering most of Northern Senegal. In order to exploit this enormous water potential, a large drilling programme was launched by the French colonial administration. By the end of the 1950's a network of boreholes had been established. Each of these boreholes was equipped with a diesel pump enabling water to be pumped from the aquifer 80-400 metres beneath the pastoral zone (Freudenberger, 1992:175,176). This opened the area for all-year grazing.

Map 7:
Date of installation of the first boreholes of the Ferlo.

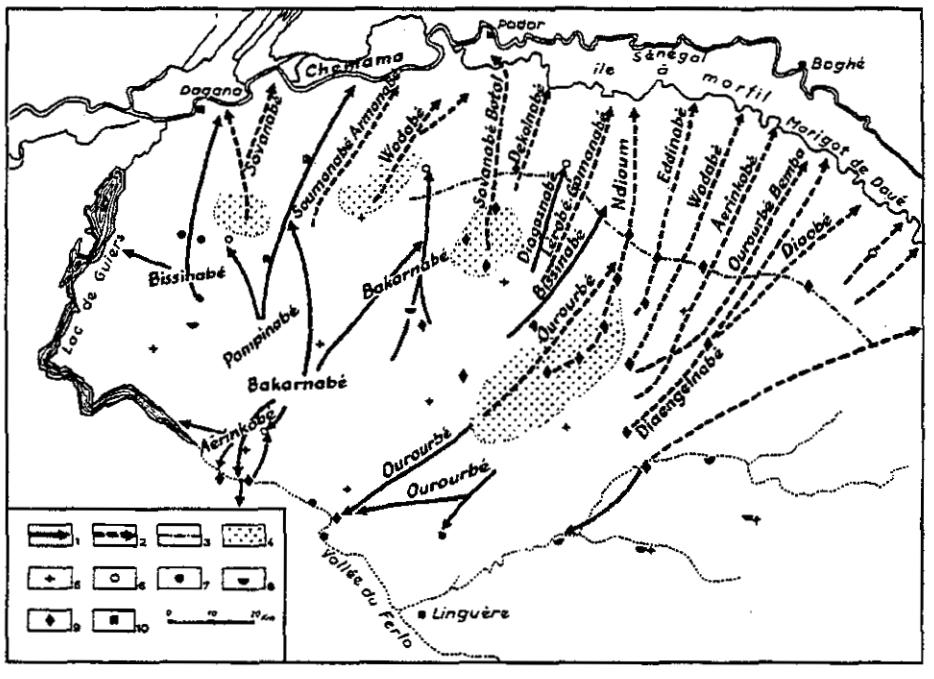


Source: Touré and Arpaillange, 1986.

The aim of the colonial administration was first of all to improve pastoral production. Once permanent water sources were accessible herds would no longer be forced to return to the river during the dry season but could exploit the rich pastures of the Ferlo even after the surface water ponds had dried out. Over the next ten years large numbers of Fulanis gave up their annual transhumance journeys and settled in the vicinities of the boreholes. The intensified use of the vast pastures of the *jeeri*, combined with improved veterinary services, allowed for considerable increases both in average herd size and in the total number of livestock in the region (Mathieu, Niasse and Vincke, 1986:227; Richter, 1991:12).

The success of the drilling programme was spectacular. Within a few years the system of seasonal migration had been completely transformed by the new opportunities. Separated by a interval of only 7 years, the surveys of Bonnet-Dupeyron (1950) and Ph. Grenier (1957) show a significant difference in transhumance activities before and after the installation of the boreholes (see map below).

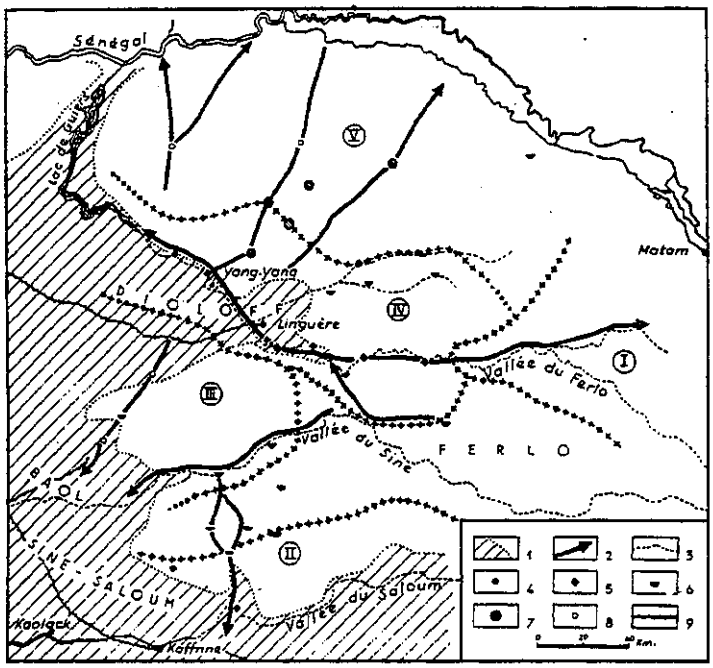
Map 8.
Dry season movements in northern Ferlo before installation of the boreholes



1. Pastoral movements; 2 Movements by herders who are cultivating the Waalo; 3. Southern limit of dry season grazing of waalo herds; 4. Areas occupied mainly by herders cultivating the waalo; 5. Borehole;7. Well; 8. Artisan shallow well *(céane);* 9. Wet season Fulani camp; 10. Village or aglomeration

I. Sedentarised Fulanis and Toucouleur; II. Sedentarised Fulanis (HaboBe); III. Sedentarised Fulanis (JenguelBe)
IV. Fulanis of the central Valleys; V. Fulanis of northern Ferlo.
Source: Grenier, 1960.

Map 9. Actual main axes of transhumance.



1. Area where sedentary Fulanis, Wolof and Serer are dominant. 2.Principal migration routes.
3. Dry Valleys, 4. Sedentary Village. 5. Fulani camp. 6. Artisan Well *(Céane)*, 7. Pond, 8. Well, 9. Railroad.
I. Sedentarised Fulanis of the East and Toucouleurs. II. Sedentarised Fulanis of the south and HaboBés. III. JengelBe Fulanis. IV. Fulanis of the Central Valleys. Fulanis of the North.
Source: Grenier 1960.

While 60% of the heads of households interrogated in 1950 declared that they regularly sent their animals to the *waalo* pastures, 52% of those households who had formerly practised transhumance declared they had abandoned this practice between 1952 and 1962. Abandonment of the binary transhumance practices was further accelerated, in the following years, not the least in response to the rain-deficits and droughts from 1968 and onwards. By 1975 Barral (1982:44) notes that only 3% of the herders in the area were still keeping up their previous transhumance schemes[5].

Movements on the southern fringe of the Ferlo were altered also by the construction of the boreholes, although in a less spectacular manner. According to Barral (1982:51), 40% of the households used to carry out regular movements towards the Djoloff and the Ferlo Valley prior to the establishment of the boreholes. Between 1952 and 1962, 52% of these households have given up tranhumance on a regular basis and by 1978 only 10% of the livestock was undertaking regular transhumance movements.

As transhumance movements were largely abandoned, the tight relations previously connecting the pastoral and the agricultural zones tended to evaporate. A pure 'pastoral area' was created,

[5] i.e. 22% of those previously practicing annual *waalo-jeeri* movements of their herds (ibid).

freed from the perpetual confrontations between farmers and herders. Herding was now reduced to simple surveillance as herds no longer would be trespassing into the flood recession fields. Likewise, the labour inputs required for watering were greatly reduced at the mechanized boreholes which were equipped with watering troughs (Pouillon, 1994:180; Touré, 1990; Barral, 1982).

Nonetheless, the construction of the boreholes did not give way to a full sedentarisation of the herders nor to a concentration of settlement along the boreholes. Dry season camps remained dispersed in the bush within a radius of 5-10 km from the borehole, and a system of micro-nomadisations (see Barral, 1982: 63-67) was put into effect. This involved pendular movements between the dry season camp within reach of the borehole and wet season camps installed further away in the bush in the vicinities of rain water ponds where water was free and readily accessible. According to Pouillon (1990:181), the dispersion of camps also had a political dimension, as it limited tensions between the quite heterogeneous selection of clanic groups who had been attracted by the borehole. As can be seen on the map of the settlements around the Velingara borehole (p. 116-118), a certain tendency may be traced of settling according to clan groups. This structure, which is far from absolute, may also be read out of the selections of village chiefs. These are frequently not only representatives of a particular area (*section* in the local French vernacular) but frequently also represent a particular sub-fraction (FafaBe, DiawBe, WodaaBe etc).

In consequence of this dispersion of settlement, the villages or grouping of houses in the vicinities of the borehole are usually occupied primarily by Mauritanian shopkeepers, state employed technical or administrative personal, Wolof farmers i.e. people no or with limited herd ownership.

It remains important to stress, that although patterns of transhumance movements have changed in character, mobility has preserved its importance. The highly variable rainfall, the frequent bush fires and the recurrent breakdown of the borehole pumps make transhumance an indispensable exit option in an environment characterized by variability and unpredictability. In fact, mobility was greatly eased through the construction of boreholes, as compared to the former hazardous and risky transhumance across territories marked by absence of accessible water sources. With boreholes within reasonable reach it now became possible to reach distant pastures without significant increases of animal energy loss.

There can therfore be no doubt that herders took full advantage of the new opportunities created by the wells[6]. Once more interesting productionopportunities were created, the binary system

[6] Obviously the new opportunities also carried with them new constraints such as the new diseases, notably botulism, which very significantly is labelled 'la maladie des forages' by the local population. These illnesses can to a wide extend be attributed to the mineral deficiencies of both water and pastures of the Ferlo River (Müller, 1989; Pouillon, 1990:1982). This issue is, however, not within the scope of the present study.

structured around flood recession agriculture and dry season grazing in the *waalo* and wet season grazing in the *jeeri* hinterlands, was quickly abandoned by a majority of herders.Instead herdrs adapted to the new system and moulded it in such a way as to best souit their own advantages. Such adaptive capacities onviously contradict any assumptions that herding systems should be stagnant and unable to change.

But contrary to the expectations of the planners, herders preserved a mobile lifestyle, moving between the distant wet season camp and a dry season camp within reasonable reach of the watering facilities.

Boreholes and environmental degradation.

As mentioned in chapter 2, it has been common to attribute to the boreholes a detrimental effect on the vegetation around them. Le Houérou (1977: 25-30), for example, states that they have lead to the destruction of pastures within a radius of 15 to 30 km around the borehole. Such destruction has been termed 'desert patches' by more alarmist researchers such as Rapp (1976) and Glantz (1977).

The idea that boreholes lead to destruction of the vegetation was seriously challenged in a study carried out in 1987 by researchers from The Centre de Suivi Ecologique in Dakar (Hanan et al. 1991). Using a satellite image derived map of biomass production to measure east and west transects at twenty selected deep-wells in northern Ferlo, the researchers showed that patterns of changes of production were variable across the individual well. It was, however, not possible to establish a relation between changes in productivity and distance to the well. The variations occurring were frequently related to factors other than grazing. This indicates that the deep wells of the Ferlo have not caused the formation of desert patches (at the limits of resolution used (1.1 km)). In no case did production alongside a well decline to near zero, although for just over half of the transects a significant relationship existed between distance and production. This corresponds with the findings of Valenza from 1981 showing that herbaceous vegetation is primarily dependent on rainfall and that grazing has little effect. Although it is common at the end of the dry season to observe large areas of bare ground around some of the deep well, these are the effect of 9 months of livestock grazing and trampling en route to the drinking point. According to Hanan et al. the desert patch prescription does not apply to this phenomenon as total productivity during the rainy season appears to be little affected. Hence, nothing seems to indicate that the establishment of boreholes increased desertification in the Ferlo.

The findings of this study confirm the hypothesis of researchers within the 'new ecology' framework presented in chapter 2. They stress that it is rainfall, rather than grazing, that determines biomass production in non-equilibrium environments.

Boreholes and agricultural encroachment.

Originally, the aim of the borehole programme was primarily to facilitate the transport of livestock by hoof to the urban markets and to provide meat to the booming peanut economy (Freudenberger, 1992:177). The grandiose character of the colonial vision is well illustrated by the following quote:

> "We recognized straight away that the deep boreholes were the dream technology which would permit all the animal trails in the sylvo-pastoral zone of the Sahel to be bordered by modern, well-equipped drinking troughs. One can imagine the borehole as destined to satisfy the water needs of these transhumance herds in much the same way that train station cafeterias or drink stands meet the needs of rail travellers"[7].

Boreholes constructed between 1942 and 1951 met this objective. By the early 1950s, however, new options emerged. In fact, the opening up of a new all-season pastoral space turned out to provide an unexpected solution to a difficult structural crisis. For, together with a significant increase in the number of livestock due to the improved veterinary services and favourable weather conditions thoughout the 1950s and 1960s, the groundnut economy in the south was putting increased pressure on the pastoral zones and conflicts between FulBe and Wolof were increasing dramatically.

Through the borehole development scheme, the colonial administration hoped to persuade herders to settle in the proximity of the boreholes and leave land further south to cultivators. The idea was to establish a sort of "pastoral sanctuary" where herders coud graze their animals freely. Around the borehole it was envisaged that economic growth poles would form. In the optimistic view of the colonial administrator Grosmaire, it was envisaged that:

> *"By attaching life in the region as a result of water availability, the borehole will enable a whole geographic area to be opened for modern economic activities and call forth all manner of human enterprise"* [8].

This suggestion of a specialized (but also significantly reduced) pastoral area was promoted under

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[7] Grosmaire 1957 in: Eléments de Politique Sylvo-pastorale au Sahel du Sénégal Fasicule 15 p. 41, here quoted in Freudenberger's translation 1992:177).

[8] Grosmaire, 1957 in: Eléments de Politique Sylvo-pastorale au Sahel du Sénégal Fasicule 15 p. 41, here quoted in Freudenbergers translation 1992:179)

the heading "zone sylvo-pastorale" (Pouillon, 1990:180). As will be shown later on, this merely verbal distinction between an agricultural and a pastoral zone, did not effectively halt the expansion of the groundnut economy.

Agricultural encroachment on the southern part of the dry hinterlands, the so-called Ferlo, goes back to the turn of the century when a cash economy emerged, based on production and sale of groundnut for the colonial market. The expansion of peanut production into the inhospitable and remote areas of Senegal's interior was largely undertaken by disciples of the Islamic brotherhood of the Mourides[9]. Through a social, economic and religious organization of pioneer farming communities, the so-called *daaras*[10] they were able to resist the hostile pastoral population of the area and clear vast areas for groundnut production. The methods used by Mouride disciples to get control over Fulani grazing land were often extremely aggressive, frequently involving the expulsion and destruction of Fulani settlements [11].

Before the creation of the boreholes, the expansion of groundnut production northwards from the central peanut basin into the case area in the "cercle"[12] of Linguere, was relatively unimportant. Competition between Wolof and Fulanis in terms of land and other natural resources was limited to the key areas around the dry river valleys. According to Santoir (1983:43), the increased contact to Wolof farmers even provoked a phenomena of assimilation. Many Fulani's residing in the area took up groundnut production, and some even converted to Mouridism. The increasing importance of farming also entailed higher levels of sedentarisation. The effects of Mouride expansion were therefore not only detrimental or one-sided.

Nonetheless, creation of the boreholes in the beginning of the 1950s increased conflicts between herders and farmers, notably in the southern part of the Barkedji arrondissement (Thiel, Linde, Gassane). In spite of their designation by the colonial administration as "pastoral deep-wells" (as opposed to agricultural or mixed wells further south), they were soon invaded by Mouride *talibés* who, together with other Wolof farmers, started clearing large tracts of land in a completely anarchistic manner. Numerous conflicts can be listed about conflict over land being illicitly cleared

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[9] The Mouride brotherhood is one of the three major Sufi sects in Senegal. It is built on the spiritual allegiance to a local Moslem spiritual leader, the marabout, but also implies a number of reciprocal responsibilities between the marabout and the *talibé*, his disciple. The Mouride brotherhood has been described among others by Cruise O'Brien, D., 1971 "The Mourides of Senegal" and 1975, "Saints and Politicians'.

[10] *Daara's* are pioneer villages of young single, male disciples (*talibés*) of a Mouride saint (*marabout*).

[11] In the case of Kaël in 1914, the creation of a *daara* implied the expulsion and destruction of 8 Fulani settlements (J. de Bevert, 1937: "L'exode d'une race" Rev. Outre-Mer, here from Santoir 1983:43).

[12] The colonial *"cercle"* was more or less equivalent to the contemporary *"Prefecture"*.

by wolof farmer and about animals captured and beaten by the *talibés.*[13]

Faced with the anarchistic expansion of the Mourides, a number of gazetted forests and "sylvo-pastoral reserves" were created by the colonial administration during the 1950s. Within the limits of these reserves cash-crop production was formaly prohibited. But due to the increasing political weight of the Mourides within the administration, the many cases where these restrictions have been ignored have not lead to any legal proceeding. And in several cases, the administration have even taken to declassifying large areas of forest in order to satisfy the demands of the Mouride saints[14].

While the opening of the boreholes in the south lead to a process of 'Wolofization' of the villages where the Fulanis to a large degree moved out to avoid conflicts and the persecutions of the powerful Mourides[15], it is interesting to note that, in some cases, opening the boreholes, such as Barkedji, had the opposite effect: of marginalizing the wolof vis-à-vis the Fulanis.

Before the construction of the borehole, Barkedji was a Wolof village, in fact the western-most Wolof agglomeration in an otherwise Fulani pastoral area. The drilling of the borehole attracted large concentrations of herds during the dry season, creating problems of cohabitation between Fulani herders and Wolof farmers. As a result, the Wolof population stagnated between 1953 and 1957 after which it started to decrease (Santoir, 1983:72). In order to avoid conflicts with the herders, farmers increasingly moved their fields away from the borehole towards the east. This "liberated space" was largely taken over by Fulani immigrants. This process was further enhanced as the Fulanis in 1961, due to their the increased political importance, were able to establish a regulation prohibiting all cultivation within a radius of 1 km of the borehole . Today the village is divided into aW part and a Fulani part of approximately equal size. But, due to the numerous

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[13] Ssee also Weicker, 1983.

[14] A prominent example from 1951 is the borehole of Deali, where the Mourides exherted very strong pressure to be attributed a large piece of land near the newly opened borehole. Within 3 days around 1200 ha of land was cleared by Mouride disciples, leaving paralyzed the administration who did not dare to protest against the seizure of land and who prefered to close their eyes to the violent injustices carried out by the *Talibé's*. In total 8250 hectares of hitherto classified land were attributed to the marabouts in 1962. Between 1965 and 1980more land was attributed to the variuos mouridemarabouts. By 1980 only 49.275 hectares of the formerly 75.900 hectares constituting the gazetted forest remained classified. Also other forests in the the Departement of Linguere (forest of Boulel) or departmenet of Kaffrine (Kassas, Delbi and later Mbégué) have been partly declassified in order to satisfy the demands of the Mouride saints. (Archives de la Direction des Eaux et Fôrets, Dakar). Notably the declassification of 45.000 hectares in the forest of Mbégué (also called Khelkom) in 1991 gave way to furious protests by herders and environementalists. (see Schoonmaker Freudenberger 1991.)

[15] Santoir's survey of the borehole of Linde , south of Barkedji, shows that within 10 years the wolof population had fourdoubled while the Fulani population decreased from 130 Fulani inhabitants of a total of 250 to only 58 persons out of a total of 612 inhabitants in 1979 Santoir, 1983:57-66).

Fulanis settled in the surrounding bush, it is the Fulanis that constitute the dominant political force in the area. In spite of having a majority in the Rural Council since its establishment in 1976, the Fulanis have, nevertheless, been unable to control the anarchistic clearing of rangelands by Wolof farmers. This process has become even more important since 1975, when Mouride disciples started entering the area in search of lands for organisation of new *daara*'s (ibid.:80).

The actual amount of land currently converted from pastures to farmland, is difficult to evaluate as fields are spread throughout the range and often not registered properly by the rural councils in charge of land registration[16]. In several cases, the large tracts of land attributed to the Mouride marabouts are not put under hoe. In other cases, the *daara*'s expand over the boundaries of what is attributed to them. In addition, many individual fields are cultivated by Wolof newcomers. In some cases, this land is cultivated illegally, while in other cases it is attributed by the rural councils. In reality, it is not so much the actual plot under cultivation that poses problems but rather the aggressive attitude of the Mouride disciples. In order to avoid having their animals impounded or beaten herders tend to evade vast areas in the vicinities of the *daara*'s. The scattering of fields over a large area, therefore represents a bigger problem than what can be read out of the actual acreage under cultivation.

Faced with this sort of problems, herders dispose of few means to defend their pastures from agricultural encroachment. The legal framework is strongly biased in favour of agricultural production[17] and the state and the rural councils are generally unwilling or unable to confront the Mouride expansion[18]. Nonetheless, more resistance has been demonstrated by the new rural councils elected in 1991. On a few occasions, they have managed to either refuse or postpone further land allocations to Mouride saints. Recently, councillors of certain localities where Mouride expansion is particularly threatening have also started attributing very large tracts of lands (between 10 and 20 km^2) to themselves and their "allies" in order to create a buffer zone vis-à-vis the expansion of *daara*'s[19]. The consequences of these 'spontaneous privatizations' in terms of rights of exclusion are yet to be seen. But it is noteworthy that, in spite of their obvious discrepancies with the legal framework governing land attribution, they have, so to speak, been *de facto* accepted by the state administration in the area, and have contributed to block, at least temporarily, Mouride expansion in the area.

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[16] According to the registrations of the rural council of Velingara 13.040 hectares of land were attributed to the Mouride *daaras* between 1984 and 1990. Even in an arrondissement as vast as Velingara (261.170 hectares) this is a considerable portion. I do not dispose of reliable figures from the communauté rural of Barkedji, but they are considerably lower.

[17] The legal framework will be discussed in more detail in chapter 5.

[18] The cases of Déali and Mbégué discussed (see note 14) are examples of this.

[19] For a discussion of this phenomenon, see Juul, 1993.

Post-drought Ferlo as a porous and dynamic formation.

As can be seen from the above, the area into which the "drought refugee's" from the North migrated was characterized not by stable and homogeneous communities but by perpetual population movements in a very porous social environment. The period leading up to the droughts had provided a number of new opportunities which were readily seized by the Fulani population: such as the venture into groundnut production by the Fulani *JengelBe* in the southern fringe of the Ferlo or the extremely rapid adjustment of herders to the post-borehole situation in terms of new patterns of mobility and increased market integration, to mention a few of the most important.

As will be shown below these so-called stagnant herders have been able to face profound changes such as the perpetual squeeze on grazing lands from the agricultural encroachment in the south and the expansion of irrigation. At several occasions herders have managed to restrict agricultural encroachment, proving to be less politically marginalized than often anticipated.

The effects of drought: expansion of irrigation and out-migration.

Irrigation along the Senegal River has been a major policy option in Senegal even before independence. Nonetheless, the effects of irrigation on the herding system of Northern Senegal were relatively negligible. With the creation of the SAED[20] in 1965, the para-statal in charge of promoting irrigated agriculture along the river, the state hoped to attain two goals. 1) To reduce the country's food deficit. 2) To mobilize the population of the Valley in order to improve their standard of living. Due to bureaucratic inefficiency, soaring costs and unresolved technical problems related to irrigation, the production results obtained were, until 1972, very poor. It was first in connection with the drought periods of 1972/73 and 1983/84 that considerable investments were made to expand both large scale and small scale irrigation schemes along the river.

The year 1968 marked the end of a period distinguished by particularly favorable conditions for pastoralism. In the following 20 years, annual precipitation rates in the *waalo* and the adjacent *jeeri* were very poor and reached a nadir during the 2 great Sahelian droughts of 1972/73 and 1983/84[21]. The combination of failing rains and absence of proper flooding over several years severely affected both pastures and flood recession agriculture. The *waalo* practically lost its

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[20] Societé d'Aménagement et d'Exploitation des terres du Delta du fleuve Sénégal et des vallées du fleuve Sénégal et de la Falémé.

[21] In Dagana, Podor and Matam the mean annual precipitations from 1970 to 1987 were respectively 192 mm, 178 mm, and 299 mm as compared to 317 mm, 317 mm, 518 mm between 1918 and 1969. (Profil de l'Environnement,1990:4)

importance as dry season or drought refuge[22] and the on-going process of differentiation was further accelerated.

One of the reasons why the drought of 1972/73 hit particularly hard was the increased sedentarity. This had been prompted by generally favorable climatic conditions and in particular by the improved watering situation in the *jeeri*. By 1970 75% of the FulBe *JerjerBe*[23] of the Valley were sedentary the entire year in proximity to the borehole (Santoir, 1994:242) while those cultivating in the *waalo* limited annual migration to a few family members with perhaps some sheep and goats. This hampered former risk management strategies based on mobility and herd dispersion.
When the drought struck, most herders therefore remained in their wet season camps and waited until the end of the rainy season before they finally abandoned the most drought ridden zone and moved southward. By that time the animals were already extremely weak and therefore less able to endure the long trip and to adapt to new fodder regimes. They were also far more vulnerable to animal diseases encountered in the south (Santoir, 1977 cited by Santoir, 1994:243). Although 60 % of the herds and 40 % of the families ended by having left the Valley to seek refuge in the Peanut Basin herd losses were considerable. Santoir estimates that around 60% of the cattle of the Senegal River valley was lost during the drought[24] and that by 1973 more than 1/4 of Fulani households had no cattle left[25]. In general, those families who left early and went furthest south were the ones to endure the least losses.

Many of those Fulanis who had suffered too heavy losses to continue making a livelihood solely from pastoral production were left with little alternative than to opt for an irrigated plot[26]. *Waalo*

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[22] In Vidou Thiengoly, a area traditionally closely connected with the *waalo*, only the poorest herders, possessing small numbers of sheep and goats sought refuge in the waalo during the 72/73 drought. (Richter, 1991:23) In general the survival rate for these animals was low.

[23] *FulBe JerjerBe* are the Fulanis settled on the sandy dunes *jeeri* bordering the Valley wetlands the *waalo* .In contrast the *FulBe WawalBe* are those who have retained property rights in the *waalo*. These have in general preserved an agro-pastoral lifestyle cultivating both flood recession crops (primarily sorghum) in the *waalo* and millet on rainfed *jeeri* land.

[24] Tourrand (1989:4) estimates losses in the Senegal River Delta for each of the two drought periods to 50% of the cattle population and 30% of the smallstock population

[25] Santoir (1979:6) Unfortunately no figures are given for smallstock.

[26] The degree of impoverishment of Fulanis cultivating in the irrigated schemes is indicated in a survey made by Santoir in the Nianga scheme near Podor. From a total of 62 Fulani households cultivating in the scheme only 15 possessed any cattle (Santoir, 1979:14)

cultivation, which had previously provided an important supplement to pastoral production, had diminished significantly due to the limited flooding. It was therefore primarily in the irrigated fields that herders could hope to produce sufficient agricultural surplus to prevent further sales of animals and to ensure their annual cereal consumption. Also a large number of Wolof and Toucouleur farmers were mobilized. From 1975 to 1988 the area under irrigation increased from 9,000 ha to 35,000 ha. (Seck, 1991:18.). In this period, village schemes funded and operated either by the SAED and by various external donors or NGOs or by the villagers themselves mushroomed along the valley. As part of the privatization efforts of the state, peasant organizations were now granted legal recognition and credit facilities. These efforts resulted in the conversion of another 20,000 ha. into irrigated fields between 1988 and 1992. This massive mobilization of producers in search of alternative subsistence contributed to make the period from 1975 to 1988 the peak expansion period of the SAED.

Not all destitute herders, however, were able to gain access to land in the irrigated schemes. A large group of those Fulanis living in the numerous villages along the *Waalo* road are now earning their living as occasional workers in the rice fields during harvest, sometimes in combination with limited rainfed millet and sorghum cultivation on *jeeri* land.

It was, paradoxically, the government policy of increasing food security that has provided the most important obstacles for livestock rearing in the *waalo* which until then, had been an important element of the agricultural economy of the area[27]. First of all, the development of irrigation is taking place in the depressions which used to contain some of the best pasture land. Secondly, access to the river has become increasingly difficult as few cattle tracks have been laid out, and even fewer respected. It has therefore become very difficult to avoid animals trespassing into irrigated fields and the exorbitant fines make it a hazardous undertaking to keep large herds in the vicinities of irrigation schemes. Thirdly, the dikes hamper the filling of ponds which used to provide fresh water in those areas where the aquifers are salty (Santoir, 1983:151). As a result the majority of herds are now kept all year round in the *jeeri* at distances of 30 to 40 km. from the rice fields.

Apart from the spatial constraints, labour demands of pastoralism have also proved difficult to fit into the demands of irrigated agriculture. Whereas labour inputs in flood recession agriculture are low and fall outside the peak periods of pastoral production, labor requirements in irrigation are considerable in terms of sowing, weeding, and timely application of insecticides and fertilizers, etc. If these activities are not carried out in accordance with the agreed schedules farmers risk being expelled from the irrigation scheme. Many herders lack sufficient manpower to split the family into

[27] In this sense it is yet an example of the cases highlighted by Galaty and Bonte (1992) of development policies aiming at diversifying income source contributing to the undermining of otherwise relatively 'sane' production systems.

two units during the cultivation season. They therefore show poor agricultural (and pastoral) results as they are forced to be constantly moving between their herd in the *jeeri* and their agricultural production in the *waalo* (interview with Santoir, April 1994)[28].

With the drought of 1983/84, the increasing split between Fulanis involved in irrigation and Fulanis maintaining a pastoral lifestyle escalated. On the one hand, Fulanis in areas such as the Lower Delta, hitherto relatively untouched by the expansion of irrigation schemes, started demanding the transformation of certain grazing areas into rice fields (Tourrand, 1989:5). On the other hand, Fulanis with important numbers of animals remaining in the area started moving southward to save their animals. These movements took place on a far larger scale than had been the case in 1972/73.

While the 'skewed' development of the irrigation proces is well described in the literature on Senegal (see the articles in Crousse, Mathieu and Seck,1991 as well as Schmitz, 1986a; 1986b; Tourrand and Jamin, 1986; Jamin, 1986 etc), few scholars have dealt with the fate of pastoral production along the river (Santoir, 1982, 1983 and Tourrand, 1994) and even fewer with the fate of these migrants once they left the Senegal River Valley. It is the latter process that the rest of this chapter will deal with.

The Egge-egge's in the Linguere-Matam area.

The principal reception area for drought migration has been the southern fringe of the Ferlo, mainly along the axis Linguere/Matam. This does not, however imply that the herders have settled, rather they have installed a more or less permanent wet season camp. During the dry season they continue to depart on transhumance trips of shorter or longer range depending on the availability of pastures. Referring to their mobile lifestyle or their zone of origin, they are called either "egge-egge's", which in FulBe means "those who are always on the move"[29] or" FuutankoBe's" referring to the Fuuta area which includes both the *waalo* and the northern fringe of the *jeeri*.

But as could be seen from the two cases cited in the introduction of this chapter, settlement in the new area did not occur in a single blow. The large majority of herders moved back to the *waalo* once the rains had resumed after the first drought. Only in the second drought did they settle on a more permanent basis in the south (the example of Yerim Sow). A smaller group continued to

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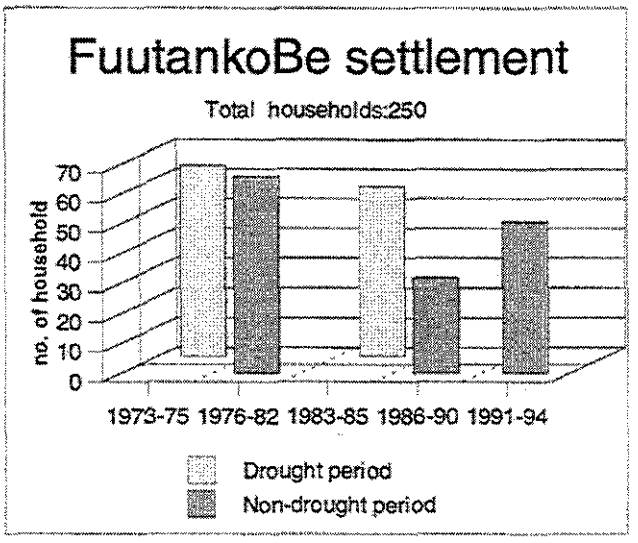
[28] As the rains improved after 1984 many farmers in fact abandoned their irrigated plots to take up rainfed and flood recession agriculture which is less demanding in terms of labor and financial investment.

[29] According to Cheick Ba 1986,the term "egge-egge" comes from "eggol", exceptional nomadisations, usually caused by drought. These hesitant movements often lead to permanent change of the area of residence.(Ba, 1986 p.137).

roam without fixed settlement around the deepwells along the Matam/Linguere axis (see Bathil Ba). By the end of the 1980s also this group had become relatively settled.

As can be seen from the chart below[30], a large group of herders (25.6%) claim to have departed definitively from the Senegal River Valley in connection with the first drought (i.e. between 1973 and 1975). A group of almost similar size (26.4%) claim to have arrived in the intermediate period of 7 years between 1976 and 1982. The second drought of 1983/84 precipitated the settlement of another 32 households (12,4%). Most surpising is, however, the important number of households which have settled after 1986 when more normal precipitation patterns had resumed. Although on a more moderate scale this migration process is still ongoing. Significant for this last 'wave' of migration is that it is made up of herders who have only recently managed to built up a herd sufficiently large to be able to resume a purely pastoral production strategy. Once this is accomplished they move to join their more prosperous kin in the south, in the hope of replicating their success story .



Obviously the two short drought periods account for a far most important influx (note that the time intervals of the the 'x' axis in the chart are not equivalent) as 38% of all resettlements within a period of 20 years took place during the 4 years of heavy drought. Nonetheless, the important resettlement taking place in the intermediate periods may be attributed to at least three factors: a). that precipitation in the intermediate years remained very low, b) that the expansion of irrigation creating increasingly difficult conditions for livestock production in the valley and was an equally important incentive for out-migration and c) that some herders who had lost a lot of livestock could not move immidiately, but had to wait until their herds were sufficiently reconstituted. Finally, d) the rain decifit in the Valley between 1991 and 1993 also prompted some herders to leave the more drought prone pastures of northern Senegal for good.

To estimate the number of herders involved in the post-drought migration proces is a hezardeous endeavour. First of all, it was impossible for the researcher to cover all borehores in the vast Ferlo region. No official statistics are available on these population movements. Local administrators have no means of evaluating their real number, as very few of the immigrants are registrered

[30]Data for the chart was collected in October 1994. 5 boreholes are comprised in the sample (Barkedji, Djagueli, Yonofere, Fourdou, Ranerou). The boreholes of Naore and Velingara are not included.

residents- and tax payers- in the area of settlement. What is clear is that the largest contingents may be found around the deep wells between Linguere and Matam in the arrondissements of Barkedji and Ranerou (see map 1). FuutankoBe herders are also well represented at several boreholes further south.

In order to get a more acurate picture of the actual number of FuutankoBe immigrants present in the Southern Ferlo, a field survey was carried out in October 1994 around those 7 boreholes where FuutankoBe presence, according to local sources, was most prominent. This survey revealed a FuutankoBe population far larger than expected[31]. It turned out that the number of immigrants at certain deep-wells even exceeded the indigenous population (see table 1). On average, they constituted 1/3 of the total population or user group around a deep well.

Table 1.
Distribution of indigenous and FuutankoBe households (hh.) around 7 deep-wells of Southern Ferlo,
October 1994.

	Indigenous	FuutankoBe	Total households
Barkedji	241 (83%)	51 (17%)	292
Naoré	36 (29%)	87 (71%)	123
Velingara	154 (81%)	37 (19%)	191
Diagueli	146 (61%)	93 (39%)	239
Yonoféré	60 (41%)	86 (59%)	146
Fourdou	56 (64%)	31 (36%)	87
Ranerou	127 (85%)	22 (15%)	149
TOTAL	**820 (67%)**	**407 (33%)**	**1227**

The large majority (60%) of the FuutankoBe herders come from a relatively small area in the

[31] It is important to stress the indicative character of this population and herd property survey. In order to cover a relatively large geographical area, the data was collected through interviews with representatives from the well committees at 7 selected boreholes and (in the cases where such lists existed) consultation with the list of users. At each borehole the data was verified with both FuutankoBe and sedentary herders, and whenever possible with the village chiefs/sub-clan leaders representing the existing groups. The sampling unit was the gallé, the Fulani household or family unit, at which level decisions about herd management are made. These households are usually nuclear families eventually with the presence of old parents. They may however vary considerably in size as several adult sons in some cases remain together and manage their animals as a single herd. This obviously makes the data less reliable when assessing the pressure of the newcomers vis à vis the local population.

arrondissements[32] of Kass-Kass and Salde[33]. At the boreholes located in the western-most part of the area of incursion one also finds immigrants coming from the western parts of the *waalo* and northern *jeeri* (from the arrondissements of Ndioum, Thile Boubacar and Mbane).

Despite the individualistic decision-making that all herders profess, it is, at least in some periods of the year, possible to distinguish a tendency to cluster - according to kin/clan.(see maps p. 116-118 on distribution of Fulani clans around the borehole of Velingara). When questionned on this subject, herders admit that it is easier to settle in areas where some relatives may be found.

> *"During my transhumance trip I have mainly settled near my kin. It's in order to be close to people I can trust, that I chose this particular itinerary"* (Herder from Mbiddi, on transhumance near Loumbi Aly Thedy febr. 1993)

In certain cases large groups of herders from the same area and clan appear to have moved more or less simultaneously thus creating one or several new "villages" in the area of settlement (as was the case of Yerim Sow). The most spectacular cases of "villagization" are found in Diagueli and in Barkedji. No less than 68 UururBe Daka households have left the small village of Bano from 1973 onwards to settle in the UururBe Daka settlement called Fidjiti near the Djagueli borehole. Even in 1994 new households were still joining. From the area of Namarel 22 households from the UururBe Ndioum subclan broke away in 1973 to establish 2 new villages in the south of Barkedji.

If one considers the important scale of this immigration wave and, not the least, its impact on the production systems both in the area of out-migration and in the area of reception, it is surprising what little notice it has received. Until recently the phenomenon, and especially its extension, was almost unknown to the Senegalese administration, especially at higher levels. Indeed FuutankoBe herders tend to be perceived as a tinyt minority by stateadministrators who become aware of their existence mainly in cases of dispute and open conflict.

Apart from the obvious problems related to monitoring of such a fluid population, one reason for

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[32] An "arrondissement" is the intermediate administrative level in Senegal constituted by 2 or 3 "communautes rurales" and headed by a centrally appointed civil servant, the "sousprefet". Higher administrative levels are the "departement" and the "region".

[33] 170 of the egge-egge households registered in the survey, originate from the areas of Madina Ndiatebe (28), Gollere (35), Meri (6), Mboumba (7), Haire Lao(6), Boki Diallobe(6) and Louggue Foulbe (6), all located within a distance of 25 km along the tar road running alongside the Valley. The village of Bano located 20 km south of Gollere, in the *Jeeri*, contributes with the largest share (68 hh). 8 households originate from Yare Lao (50 km south-east of Gollere).

such a blind spot to emerge, is that the process of 'repastoralisation' carried out by the post-drought migrants, for many state administrators, represents a 'regression' from the higher state of sedentarised agro-pastoralism, which does not fit within the models received during their education.

Uneven herd distribution.

The extent of this in-migration and its impact on the existing production systems becomes all the more spectacular if one looks at the distribution of animals among sedentary[34] and FuutankoBe households. Such diffrences in herd ownership was investigated as part of the survey of October 1994.

If collection of acurate data on population movements is difficult, data collection herd ownership is even worse, being both extremely time-consuming and full of pitfalls and inacuracies[35]. Hence I have chosen to present data of a more indicative character , but to restrain from futher "fudging, cooking and manipulating"[36] in order not to conceal the inherent validity problems of the data material.

In order to cover a relatively large geographical area, the data is not collected with the individual herder (indeed no indicator of its validity), but through interviews with representatives of the well committees at 5 selected boreholes. These representatives listed the names of regular borehole users and tried to recollect the size of the herd possesed by each user (not the amount of animals paid for). In those cases where a list of users existed this list was also consulted. At each borehole the data was verified with both FuutankoBe and sedentary herders, and, whenever possible, with the village chiefs/sub-clan leaders representing the existing groups.

Nonetheless, data on herd sizes and herd ownership remains a sensitive issue. This is even more so in cases as this, where livestock wealth is used as an indicator of power relations between

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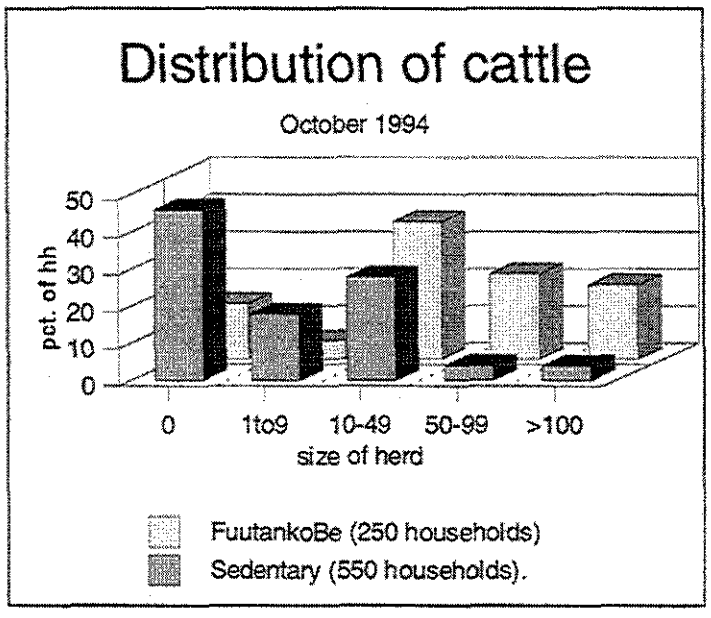
[34] The term "sedentary" is used to describe those Fulani agro-pastoralists (FerlankoBe, SannaraaBe, JaawBe, FafaBe, HaabooBe and YalaBe) who were present in the area before the arrival of the FuutankoBe migrants. Wolof and Maure households are also included in this group. It is important to stress, however, that the term sedentary does not exclude annual migrations between wet and dry season camps, nor exceptional nomadisations prompted by drought, breakdown of the deep-well or other types of calamities. Although some exceptions are found within the group, these households are predominantly agro-pastoral with limited possibilities of mobility on a larger scale. For the sake of variation the terms "indigenous" or "first-comers" have equally been used for this group.

[35] For a discussion of the reliability of different methods of collecting livestock data see Sutter, 1987 and Juul, 1991a.

[36] See Polly Hill (1986:30-50) for a devastating critique of the way data material is treated in Development Economics.

various internally competing groups. As the focus of the research presented here is on FuutankoBe migration rather than on the actual herd development, or grazing pressure, the informants were asked to give only rough indications of the sizes of the herds using their deep well on a regular basis. These were grouped in 5 categories. Consequently I have refrained from calculations of average herd size etc. Finally, the survey was only carried out at 5 boreholes. Due to ongoing conflicts at the borehole of Naoré between firstcomers and newcomers (treated in chapter 5), I found it more prudent to refrain from examining herd structures here. Investigation of herd ownership at the borehole of Velingara also proved to be problematic. As in the population survey, the sampling unit selected was the "galle", or household at which level the animals are owned and decisions concerning the herd are made.

However, a number of pitfalls exist. As we have not collected data on family sizes it is not possible to control to what extent the very large herds correlate with very large families and thus with several owners of equal status i.e. not wives or children. One could suspect this to be the case with some of the very large herds of smallstock of several thousand head.



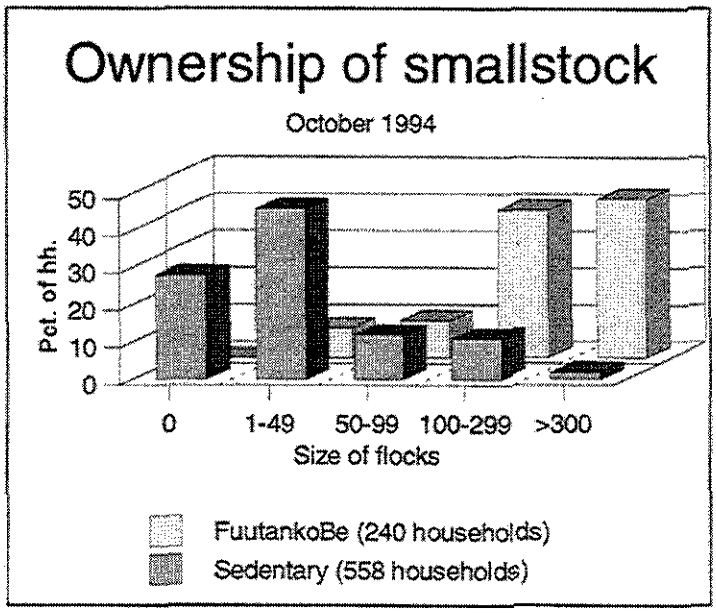
The survey reveals a very skewed distribution of cattle and smallstock ownership. Indeed, the first impression of the situation at the boreholes is, that not only have the local population in the south of the Ferlo endured the reception of a very large number of foreign herders, but they have also been 'invaded' by foreign animals. But as will be shown later on, this development is not quite as conflictive as could be anticipated.

Not surprisingly, households possessing no animals at all (135 households or 15%[37]) are found entirely among sedentary households[38], as destitute FuutankoBes herders have little reason to remain in the southern rangelands.

[37] Data from Velingara and Naore are not included in these figures.

[38] Including both Wolof and Fulani.

Among both sedentary and newcomers, households are found who do not have cattle. However , the number is more significant among sedentary households where 46% have no cattle as compared to 15% among FuutankoBe. In contrast the large herds of over 50 heads are owned almost exclusively by newcomers (8% by sedentary against 43% by FuutankoBe).



The uneven distribution of livestock is even more pronounced when looking at sheep and goats, which constitute the core of FuutankoBe herding strategies. Consequently the very large herds of smallstock (>300 heads) are almost entirely owned by FuutankoBe households. By contrast, the small herds between 1 and 49 heads are owned by sedentary herders. However 12% of the sedentary households dispose of herds of 50 to 99 heads (i.e. a herd of quite significant value).

With this uneven herdownership in mind, it is not surprising that FuutankoBe herd owners often are referred to as "Jaarga" i.e. very rich herd owners. Nonetheless the survey reveal exhibits a certain differentiation within the FuutankoBe group. According to the survey 15% (or 37 households) of the FuutankoBe households possess only smallstock. Of these, 14 own less than 50 sheep. Part of these households consist of former WodaaBe captives living near Barkedji.

The picture revealed by the survey generally fits well with a previous mapping exercise carried out by the author around the deep-well of Velingara in 1991[39]. In that case (Juul, 1991b) it was found that, of the 109 pastoral camps located within a distance of 2-20 km from the deep well[40], 41 households were installed after 1973, the majority indicating 1984 as the year of settlement. A

[39] This mapping exercise, carried out by my patient assistent, a local guide and myself, was made before the existense of GPS (Global Positioning System) was put to our knowledge. The location of each camp was measured by means of a car and a compass, driving in as straight a course as possible from the point of departure (the borehole). For obvious reasons this methods does not give very exact locations. The method was however reliable enough to prove the initial hypothesis that it is the most livestock-rich herders who live furthest away from the borehole. It turned out to be extremely time and diesel consuming, reason for which we refrained from repeating it at the 6 other wells as initially planned.

[40] While included in the 1994 survey, the central village of Velingara inhabited almost exclusively by wolof farmers was excluded in the 1991 survey. This gives the 1991 survey a bias towards pastoral producers.

large majority of these households originated from the Senegal River Valley[41].

The 1991 survey (see below) showed a similarly uneven distribution of animals between FuutankoBes and sedentaries. While households settled in the area prior to 1973 owned a total of 560 heads of cattle and 1107 sheep or goats, the "newcomers" owned a total of 2092 heads of cattle and 5029 heads of smallstock. Only 6 of the households present in the area before 1973 disposed of herds of more than 30 cattle, while none had flocks of smallstock of over 100 head. All the large herds of smallstock were owned by herders from the Senegal River who have specialized in this type of
pastoralism[42]. On the basis of these, still quite unreliable answers, a very tentative average may be calculated according to which average herd size among sedentary households is 8 heads of cattle and 16 smallstock, while among the newcomers the average was 51 heads of cattle and 122 sheep and goats.

More important, however, is the correlation af the two findings of the surveys. The 1994 survey revealed that, contrary to what was to be expected, it is the newcomer population that posess the bulk of livestock in the area. This prosperity (especially in sheep and goats) is closely interconnected with the findings of the 1991 survey, showing that those herders who lived furthest away from the borehole also tended to to be the most livestock-rich. It also turned out that the most distant camps were those belonging to FuutankoBe herders. Hence far from being a sign of marginalisation, the 'distant' location of FuutabkoBe camps is a conscious strategy by resourceful and speculative herders who strive to be as close as possible to the pastures.

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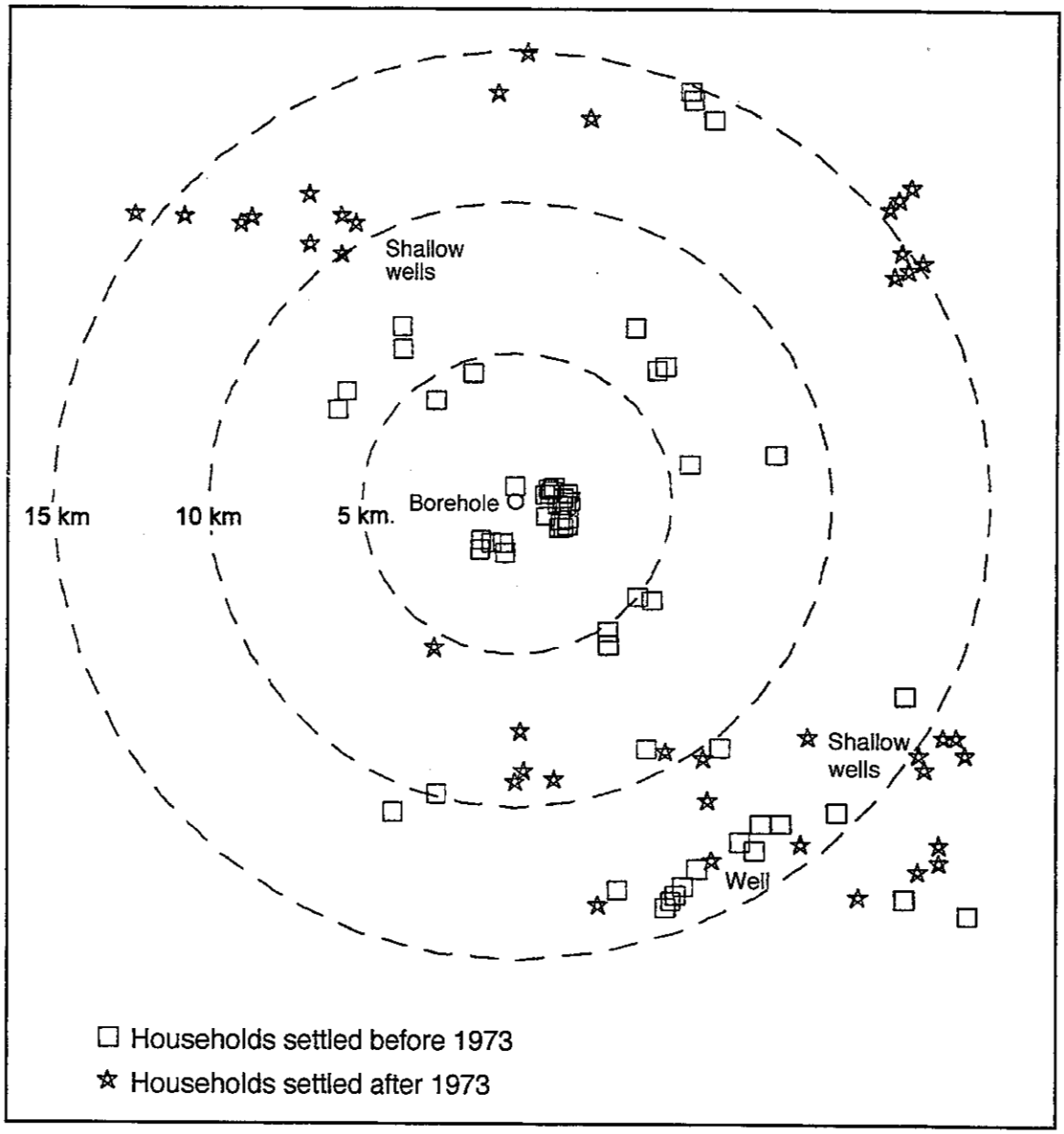
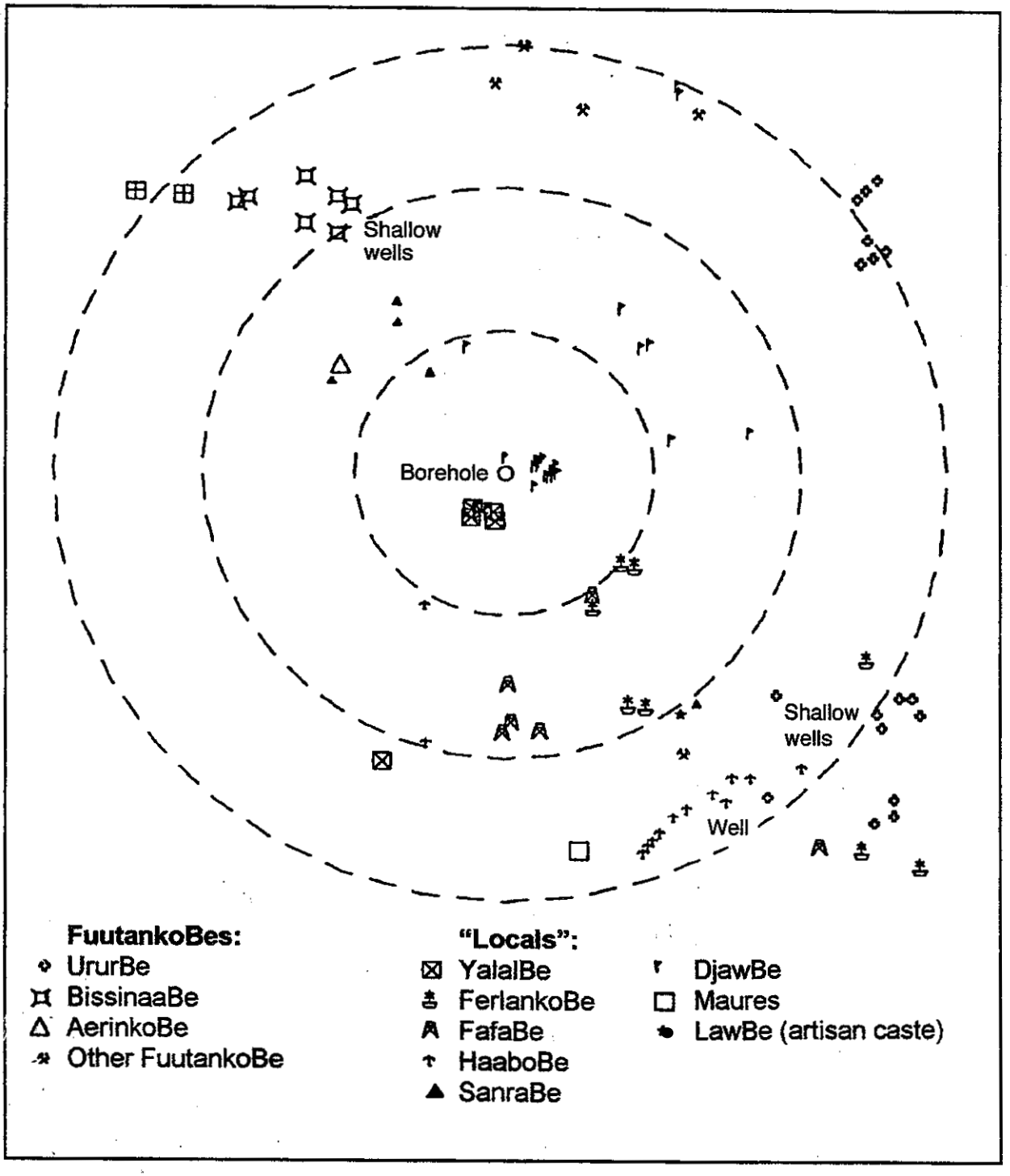
[41] Mainly Gollere, Ndioum, Haire Lao, Kass Kass in the Middle Senegal River Valley and in a few cases from Tessekre, Amali and Ganina in the north western Ferlo. A few Fafabe households had arrived from Ndiayene Fuuta in the northeastern Ferlo.

[42] The herd sizes expressed in the 1991 census seem surprisingly modest compared to other egge-egge households encountered in the area. Most of the "newcomers" interviewed from 1989 to 1994 on migration patterns indicate ownership of flocks of sheep and goats ranging up to 400, 700 or even 1000 heads. Such herd sizes have also been confirmed by the well committees as well as by the veterinary doctors in the area as well as by the 1994 survey.

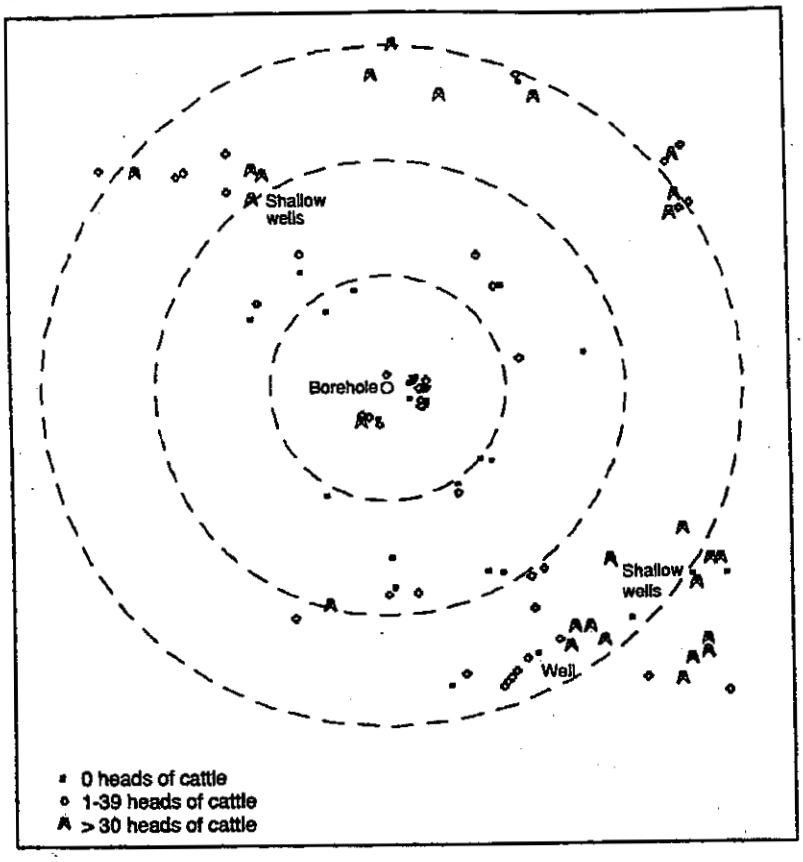
Distribution of households around the borehole of Velingara, October 1991.

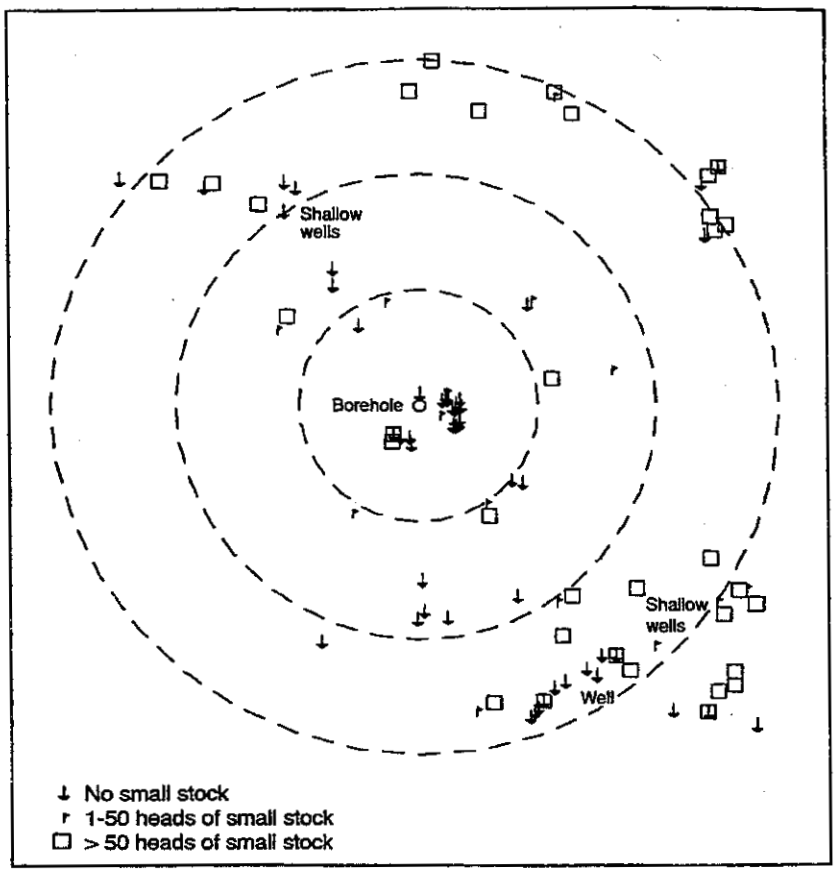


Distribution of households by clan groups.
Velingara 1990.



Distribution of cattle and smallstock around the borehole of Velingara, 1990.





But in order for this strategy to be viable, the key problem related to watering had to be solved. And it is here that a simple technological device, the tracor inner tube, proves to be the most important single factor for the highly successfull herd management strategy of the newcomers.

The inner tube and the donkey cart.

The invention of a new way of transporting water over long distances by recycling the huge tractor-type inner tubes from the bulldozers and the heavy machinery employed in the laying out of rice fields into huge water containers in fact provided for a minor revolution in the range management systems of northern Senegal.

As mentionned in the introduction, the ground water table in most parts of the Ferlo region is several hundred meters below surface. The pastoral space is therefore structured above all, by the boreholes placed at a distance of approximately 30 kilometres from eachother. These deep wells occupy a central position in pastoral resource management.

In the extensive Sahelian livestock systems, a major difficulty during the dry season consists in simultaneously ensuring optimal fodder conditions while limiting energy losses related to watering. For as the dry season progresses, the distance between the watering point and the fresh and untrampled pastures increases. If cattle is grazed further than 15 to 20 kilometres away from the well too much energy is spent on getting to the water. For sheep and goats the maximum distance is considerably shorter.

Among the indigenous herders of the Ferlo region, the dry season strategy consists in approaching the camps to within 5 or 6 kilometres from the deep well once the natural pools have dried out. The animals are then grazed in a centrifugal movement reaching pastures still farther away as the dry season progresses. With this system energy losses by the end of the dry season are significant.

By means of the tractor inner tube, herders from the Senegal River Valley, are able to attack the problem in a radically different manner. While the adult animals may continue to water at the borehole every second day, the ingenuity of the new system consists in sparing the youngest and the sick animals from the long and constraining trip to the well. For when lain on a donkey cart, these tubes can transport large quantities of water over long distances, enabling the weakest part of the herd to be watered at the camp. This considerably reduces energy losses. The younger animals that graze in the vicinities of the camp have easy access to fresh pastures and the herd is ensured optimal fodder conditions. This situation is maintained by frequent movements of the

camp during the dry season (see the case of Yerim Sow[43]). In this way the newcomers are able to live closer to the fresh and untrampled pastures, at a distance of up to 20 kilometres from the wells.

The radius of pastures accessible to the herds is now considerably enlarged as compared to the "centrifugal grazing strategy"[44] employed by the more sedentarized households. The result is a considerable decrease in mortality[45] and an increase in reproduction rates and other parameters of herd productivity. For these reasons the tube is often referred to as "the secret of the Fulani".

According to my informants, the 'invention, was rather accidental:

> *It was Harouna Mody Ciro from Gollere,who invented the tube for water transportation. During the drought he was forced to go very far away to get fodder and every day he brought with him a 4 litre can to carry water. One day the can fell off the cart and broke and he was forced to use a tube he coincidentally carried with him to conserve the remaining water. People had told him that the tubes were poisonous, but the experience showed him that they weren't. From then on, he started experimenting with still larger tubes.* (Herder Fourdou febr. 93).

It is indeed ironic that it is a spill-over effect of the irrigation process, itself a major factor in evicting herders from the Valley, that constitutes the key factor in this new and higly productive herd management system. Nevertheless, the use of rubber from inner tubes is in itself no new invention. Rubber is used in many pastoral societies for making different utensils such as soft buckets for drawing water from wells, strings for different sorts of attachment, shoes etc. The use of inner tubes for water transport was, for example, observed by the author in Mauritania in 1986, where car inner tubes were cut and attached at both ends and lain over a donkey-back to carry quantities of around 40 litres of water from the well to the household. Similarly, expansion of grazing lands through regular use of donkeys to carry water for young livestock and human consumption has been described by Jacobs (1980:287) as one of the management techniques

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[43] Seasonal movements along the same gradient from the borehole are carried out by most of the herders interviewed, however the frequency varies considerable according to precipitaion and pastures as well as availability of labour, size of herds and as herders repeatedly stress: the "devotion of the herder"

[44] See L'Hoste, Ph. and P. Milleville 1986.

[45] Not being a veterinarian I have not been able to verify these statements in a scientific manner.

employed by the pastoral Masai to conserve and improve their pastures. Nonetheless, the transformation "waste" tubes from the irrigation schemes into containers suited to transport large quantities (300, 600 or even 1000 liters[46]) of water on donkey carts to camps located 15 to 20 km from the borehole, seems to be peculiar to northern Senegal.

The 'triumph of the tube' relied on a number of contingent factors among which the most important precondition was the diffusion of horse and donkey carts among herders. During the seventies attempts to introduce carts had been had been made as part of the general attempt to mechanize the agricultural sector. Results had nonetheless been meagre and by the beginning of the eighties the number of pastoral households with access to a cart was extremely limited[47] (Santoir, 1982:30).

Between 1975 and 1991, however, the number of carriages increased tenfold (Santoir, 1994:251) from one carriage per 24 households to a carriage and a horse for almost every second household. This booming period coincided with the massive migration of the FuutankoBe herders. For these herders the carts became a sine qua non for the development of new herding strategies.As we shall se further on, the cart-and-tube system was promptly picked up by the local herders.

What makes the development even more extraordinary is that these rather substantial investments[48] were made during a period characterized by serious drought - largely without external assistance (ibid). From 1983 onwards, private traders in the area report a rapidly growing interest in carts and tubes. Today there is a flourishing market for used inner tubes as well as second hand tires and spare parts for carts. Local manufacturers, mechanics and specialists in vulcanization are present in every village which has a borehole.

At present most pastoral households dispose of at least one, but often two or three, carts[49].

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[46]Thebaud 1994, registered 3 sizes of tubes around the borehole of Widou Thiengoly, 200, 400 and 600 liters. I have observed larger tubes at several occasions but they are less popular as they are difficult to handle and require many donkeys to pull. Furthermore they are difficult to get hold of.

[47] In 1982 Santoir (1982:30) states that Fulani herders rarely dispose of horse or donkey carriages. According to a survey made by Berot-Inard and Di Meo in the mid eighties only 1 out of 5 fulani households in Labgar, where the main center of SODESP is located, disposed of a cart. SODESP (Societe de Developpement de l'Elevage dans la zone Sylvo-Pastorale) the parastatal in charge of livestock development in northern Senegal was the main distributor of carts.

[48] In 1998 the local blacksmith of Barkedji indicated to sell a locally produced cart at 75.000 F CFA. Factory produced carts are considerably more expensive.

[49] The questionnaire survey comprised 53 households and showed out that 32% af the sample dispose of 1 cart, 34% of 2 and 21% of 3 carts. Three households claimed to own between 7 and 9 carts while only one family claimed

According to our questionnaire survey of April 1995, the average number of carts is 1.88 for sedentary households, while it is 2.39 for FuutankoBe[50].

The carts are pulled either by horse or by donkey. When used for the transportation of water, the cart is usually pulled by 2-4 donkeys. The number of carts exceeds the number of tubes, indicating that the carts are used for multiple purposes. Besides transport of water, they are used for travelling. In case of transhumance they carry young and older members of the family, luggage, poultry, water and sometimes industrial feed concentrates to ensure proper feeding of the animals. With the carts herders are now able to transport the newborn lambs or sick animals otherwise unable to accomplish the voyage[51]. As can be seen from the quotation below, this development is not neccesarily an advantage for the local population:

> *The transhumants are useful, there is no reason to limit their number. If they are close to you, they may offer you some animals and if they leave they will give you the newborn lambs, who cannot survive such a trip.* (President of the well-committee, Lombi Sanrabe 1989)

As to the number of tubes, 43 % of housholds indicate that they dispose of 1 tube[52]. Herders possessing more than 1 tube are found mainly among the newcomers. The average number of tubes per household is 1.8 among sedentary households and 2.28 among FuutankoBe. This obviously does not indicate anything about the size and capacities of the individual household.

The number of daily trips vary seasonaly as watering needs increase significantly by the end of the dry season. As camps are placed as far as 15 km from the borehole the women, usually those in

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to posess none.

[50] These findings are more or less equivalent to those found by Thebaud in 1994 in Bouteyni (in north-western Ferlo). According to Thebaud pastoral households (*galles*) in Bouteyni disposed of an average of 1,62 carts. 18 of the 33 households included by Thebaud had at least one cart while the richest households disposed of 3 to 6. (Thebaud, 1994:24). In some parts of eastern Ferlo (Loumbi Sanrabe and Dendoudi, however, a large group of the poorest households do not to dispose of any means of transport.

[51] For unknown reasons Berod-Inard and Di Meo (p.101) claim that the carts rarely are used for transport during transhumance. This statement does not correspond with the findings of the present author. On the contrary donkey and horse carts play a crucial role in maintaining mobility.

[52] 2 households indicated not to posess any tubes, but due to the selection of respondents (only 1/3 was local sedentary households) this is not neccesarily very representative.

charge of supplying water, easily spend 7 to 8 hours a day fetching water[53]. By the end of the dry season it is not unusual that several women in a camp are fully occupied with water transportation. It is usually those households located furthest away that dispose of the largest number of tubes.

From cattle to sheep.

The full extent of the utility of the new water transportation technique is perhaps best understood when it is linked to the development by the FuutankoBe herders of a highly specialized herding system based on the raising of sheep rather than on cattle.

Herders as well as researchers have a long tradition for putting emphasis on cattle, considered as the superior and most valuable part of the herd. According to Fulani herders "It's the cow that constitutes the only real prosperity" (Bonfiglioli et Diallo, 1988). Indeed many surveys hardly take into account other species (see for example Barral, 1981; Fayole, 1974; Lhoste et Milleville, 1986). The general assumption is that smallstock is raised mainly to limit off-take on the cattle herd. Because of their shorter reproduction cycle[54] they provide a means of restoring (cattle) herds after drought or diseases, as surplus head of smallstock may be exchanged for heifers. Once the herd was reconstructed, smallstock is likely to lose its importance and be limited to a few animals kept for slaughtering at festive occasions.

Since the drought periods of 1972/73 and 1983/84, smallstock, notably sheep, has acquired considerable importance and is given a dominant role in many herds in the Ferlo[55]. This may largely be attributed to the influence of the FuutankoBe herders.

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[53] A measurement of time consumption for filling of tubes was carried out by the team of Thebaud at the borehole of Widou Thiengoly in April 94, (Thebaud, 1994 p.25). According to them, queuing at the water source and filling of the tube amounted for approximately one hour. Unfortunately the study does not comprise the time spent traveling the long distances to and from the camp and the boreholes is by far the most time consuming. According to my findings it is not unusual to spend more than 2 hours each way if the camp is located more than 15 km away. To this adds time spent doing the shopping, the laundry as well as time spent on renewing social contacts.

[54] According to Projet Senegalo-Allemand d'Amenagement et de Reboisement Sylvopastoral de la zone Nord (P.S.A.) in Widou Thiengoly the fertility rate in traditional herding systems in the Ferlo is 32 % (of reproductive females) for cattle, 82% for sheep and 100 % for goats (PSA: 1991 annex 21) Offtake of smallstock for meat for sheep.is made at the age of 9 to 15 months, while for cattle it is between 3 and 4 years (Wilson, 1988.)

[55] The growing importance of smallstock has been reported by Bonfiglioli et Diallo 1988, A.T. Diop 1991 and Thebaud 1994.

Even before the drought, the agro-pastoral Fulanis from the *waalo* tended to put more emphasis on the rearing of smallstock than did their relatives in the *jeeri*[56]. But when moving southward in the aftermath of the drought the rehabilitation strategies of the FuutankoBe herders were centered primarily on the sheep. This was a way of adjusting herd composition to suit the new and more difficult ecological conditions since a large part of fodder requirements of sheep and goats can be met through browsing on tree products which are less affected by failing rains. Contrary to what might have been expected, this strategy was not abandoned once precipitation resumed more normal standards after 1988.

Indeed, the rearing of sheep has proved to be an extremely viable strategy. Due to the higher drought resistance and shorter reproduction cycle of sheep, herders originating from the Fuuta area were able to recover their losses very quickly and today most of them dispose of flocks far beyond their pre-drought size[57]. Among FuutankoBe herders residing in the southern of the Ferlo region it is not unusual to see herds of 400 to 700 or even 1000 sheep and goats.

Table 2. showns the distribution of those 101 households (43% of the October 1994 sample) posessing more than 300 heads of smallstock:

Size:	300	400	500	600	700	800	900	1000	2000	> 3000
No.	41	22	6	10	4	5	0	7	4	2

This shift in herd composition was only possible due to the improved watering and grazing conditions facilitated by the tube and the donkey cart, enabling herders to keep far larger flocks of sheep than had been possible before. But while the tube and cart system contribute to limit the energy losses of the animals, it is important to stress that the new system of water transport is

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[56] According to a survey made by Santoir in 1978 the mean herd held by WalwalBe (FuutankoBe) households consisted of 18 heads of cattle and 69 heads of smallstock, while JerjerBe households would have 39.2 heads of cattle and 34 heads of smallstock (Santoir 1982 p.4). Variations between households were, however, considerable.

Unfortunately no studies of flock sizes before 72/73 seem to be available. Studies on herd composition in the Senegal River Valley after 1975 report of average flocks of smallstock of 30,9 (Blanc SEDES 1975, downstream of the Valley) 40,6 (Santoir 1975, Mbane and Thille Boubacar) 21,3 (ibid Matam 1979) 35,1(ibid. Senegal River Basin 1979) pr. household. Tourrand and Direction de L'Elevage estimates drought losses for smallstock in the 2 drought periods to be between 30% and 50% (Tourrand 1989 p.4. and data from DIREL Statistics unit).

extremely labour demanding in terms of surveillance and water transportation and leaves little time for supplementary income activities. Also in terms of labour investment, the new system challenges conventional wisdom on pastoral herd management.

Drought recovery through specialization instead of diversification.

According to most accounts on drought recovery in pastoral societies, the principal remedy for herd reconstitution is to limit off-take on the herd through the creation of alternative income sources[58]. The primary strategy for risk management consists in diversifying into other economic activities (into cropping, wage labour, collection and sale of wood or fruits gathered in the bush, etc.). With income generated from other sources, grains and other necessities can be purchased without selling off animals. In successful cases, surplus income might also be used to purchase livestock to ensure faster reproduction of the herd. As mentioned above, smallstock in such a model is regarded mainly as an intermediate category, which is later to be exchanged for cattle. (see for example Richter, 1991:22)

Although effective, especially in cases where little livestock is left or where families have sufficient manpower available, the diversification strategy has its disadvantages. It often involves at least a seasonal limitation on mobility to give time to cultivate, to build up a clientele, or to create a network of people who might help in specific ways. As stated by Khazanov (1983:19) "even limited agricultural production exercises a considerable influence on many aspects of the life of semi-nomads, for example on herd composition, routes and prevalence of pastoral migration".

Increased emphasis on agriculture limits mobility particularly in periods critical for herding such as the end of the dry season where water and pastures are scarcest and labour requirements highest. At a certain stage of the herd's reproduction, the herder is therefore faced with a choice. He can choose to limit weight losses at the end of the dry season by migrating to more remote areas with fodder resources remaining and later continue southward "to meet the rains"[59]. Alternatively he can stay at home and prepare the fields for a new agricultural season. This choice is conditioned on the one hand by the availability of labor (to enable successful diversification) and on the other hand by the size of the herd and its ability to cater for the consumption needs of the family.

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[58] See for example Dahl, G., 1979 on the Waso Borana, Bonfiglioli et Diallo, 1988 on the Senegalese Fulani subgroup, the FerlankoBe.

[59] i.e. moving to areas where the rain have started and new grasses have come up.

Even though the FuutankoBe herders were agro-pastoralists before moving southward, the majority of those remaining in the southern Ferlo seem to have opted for increased specialization. Hence, supplementary income-generating activities besides pastoralism are rare. Instead of reconstruction through restriction of off-takes , as in the diversification model, the strategy of FuutabkoBe herders aims at keeping reproduction rates as high as possible by ensuring optimum fodder availability throughout the year. This is ensured through increased mobility.

According to herders it was the wish to "spare the lives of their animals" which determined this choice of strategy. Obviously other factors are equally at play, such as limited labor availability due to nuclearization[60] of households, the fact of being "foreigners" lacking the necessary social network to get access to alternative sources of income etc. But first and foremost, it is the size of the remaining herds that determines the number of alternatives[61].

> *"It's only three years ago that I started transhuming regularly. It has a good effect on the general shape of the herd. Before I couldn't leave because I was in charge of my old folks. Now the size of my flock forces me to move"*
> (Transhumant , Well of Belel Touffle Feb. 1993).

For contrary to the poetic statement of Lattimore (1967, cited from Khazanov, 1983:70) of "the poor nomad being the true nomad", mobility was and is not a real option as a survival strategy for the most impoverished herders. Only richer herders dispose of sufficient animals to depend solely on the herd. Poorer herders are forced to seek supplementary sources of subsistence, often involving sedentarization. Such "forced" sedentarization need not, however, be permanent. Once the herd has reached a certain level, other activities may be abandoned and mobility resumed. This seems to have been the case for many (younger) households who have left the Fuuta area after 1990.

Changing herding strategies

The turn towards breeding of sheep has a number of consequences for the herding strategies

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[60] Since the advent of the boreholes there has been a radical shift in the extent to which labor is a critical factor of production. At present most households consist only of the nuclear family, the average number of people pr. household being 8,3 (Sutter, 1983 p.200).

[61] Although it does not fit into the idealized picture of the specialized herder that the FuutankoBe herders like to make of themselves, more herders than anticipated have turned out to cultivate , though not in a very systematic manner.The survey from April 1995 showed that many of the poorer FuutankoBe households had some agricultural activities. However this was the case of only 1 of the households possesing more than 300 heads of smallstock.This fits with the case- story told in the introduction to the chapter of Bathil Ba, who maintained some cultivation while waiting for his flock to grow to a suitable size to provide for the entire income of the family.

adopted and the amount of labor invested in livestock herding. For although herds are still mixed, it is now the sheep rather than the cows that determine the herding and production strategy.

In herds based primarily on cattle, the principal production goal among Fulani herders is to ensure constitution and growth of their herd, and to increase milk yields (Niamir, 1990:20). Although rearing of sheep is compatible with a milk-oriented strategy (Thebaud, 1994:24)[62] it is meat production and commercial sale that constitute the essence of the system. Owing to their inferior market value, goats are normally a smaller part of the herd. Being good milk producers they act primarily as support, providing milk for the young lambs in the dry season when milk production from ewes tends to run short[63]. Cattle are kept for milk production and as savings. They are mainly sold to cover large expenditures such as purchasing horses or donkey carriages, vehicles, machinery or to pay for a pilgrimage to Mecca[64].

Since the establishment of the boreholes labour demands for cattle rearing have been fairly limited. Due to the safe environment[65] and the reduced mobility the herd is normally not guarded (see Touré, 1990) except during the agricultural season to prevent them straying into cultivated fields. During the dry season cattle is only chased off in a specific direction by the herder. In the evening the milking cows will return by themselves to the camp. After milking the herder might chase them off for night grazing. With regards to watering the cattle herd is also able to move unguarded to the borehole. Here the herder is present to ensure proper watering and to avoid mixing with foreign herds. Most herders also visit the pastures regularly. Finaly fodder quality is controlled by the herder once in a while by examining the dung and the general state of the animals. This is used as an indicator for when a change of pastures is needed.

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[62] In many families a large part of the milk consumed is ewe and goat milk. The high content of milk fat makes ewe milk very good for production of butter which is highly esteemed in the local "cuisine" and an important source of income for women during the rainy season.

[63] An important task of the women and young children is to ensure that those lambs who do not get sufficient milk from their mother can suckle by a goat. Considering that many flocks have very large numbers of lambs, this is in certain periods very time-consuming.

[64] This is of course a function of the general economic standing of the family. Poorer households may be forced to sell even reproductive females to ensure family subsistence (see Sutter, 1987).

[65] In order to limit the number of predators attacking cattle in the Ferlo, the colonial administration carried out a strychnine campaign between 1950 and 1955 (Touré and Arpaillange, 1986:41). Considering the extremely limited number of predators (apart from jackals) inhabiting the area at present, it is likely to have been quite efficient.

In the traditional sedentary management system, the rearing of sheep and goats has normally consisted in having a few heads grazing freely in the vicinity of the camp, sometimes under the supervision of the youngest members of the household[66]. As a result, production results have generally been poor, and mortality among smallstock high[67].

In contrast to this system, labour inputs in FuutankoBe flocks are considerable. First of all, herding of the flock is carried out either by several adolescent boys and/or adult herders already well initiated into herding practices. Furthermore, the animals are subject to intensive care. Suitable pastures and fodder are carefully selected[68] in order to ensure proper feeding. Intense surveillance is accried out both on the trip to deep well and to the pastures: This contributes to reduce losses due to attacks from predators or animals lost in the bush considerably. Finally large flocks are split into several units, often separating goats and sheep while the youngest animals are kept near the encampment and herded by the women or the youngest members of the family. This enables a more carefull selection of the pastures most suited to each category of animals

But if mobility increases, so does labour requirements. During transhumance also cattle must be closely guarded to avoid straying and losses due to theft and predation (Sutter, 1987:212). They also need to be guided to the new pastures until the animals are familiar with the routes and can find their own way.

All this makes the system very demanding in terms of labor requirements and skills. In those many cases where herders make use of hired labour they often complain of many difficulties in ensuring proper care of the herd by hired staff. The often quite mediocre salaries paid to the hired labour contributes to make hiring such herdsmen a risky business. In the course of the fieldwork many stories were told of animals that were lost or abandoned in the bush. In some cases the hired herdsman had fled his post leaving most of the flock unguarded while bringing a smaller part of the flock with him to sell to the first buyer. In other cases theft and sale of smallstock was the work of adolescent sons unable to convince the head of households of the need for some pocket money.

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[66] From the age of 5 children take care of the youngest animals kept in the vicinity of the encampment. From the age of 9 to 10 years they have the full responsibility of taking the sheep, goats and calves to the pastures. At the age of 12 they are considered able to take care of the cattle herd (Ba, 1986 p.142).

[67] According to ISRA, 1992, mortality rates for newborn lambs (between 0 and 1 year) was 17% in the Louga Region in Northern Senegal.

[68] A good herder is supposed to ensure a varied diet to his animals by ensuring access to different types of grasses and by leading them to low grounds where they can browse on tree foliage and where pods from certain tree species can be provided through shaking of the tree (see Thebaud, 1994).

Increased mobility and new grazing techniques.

As mentioned earlier, the high survival and reproduction rate of FuutankoBe herds is closely related to the higher mobility and the enlargement of the range of accessible pastures both of which were facilitated by the new means of water transportation.

Pastoral mobility covers a range of different practices. It may therefore be useful to distinguish between "migrations" and "micro-nomadisations". Migration normally refers to longer nomadization, mostly inter-seasonal. In many cases, it is related to a shortage situation in the area of out-migration.

In contrast to this, the term micro-nomadization is used to describe the short range pendular movements between a dry season camp close to the borehole and a wet season camp located away in areas where surface water sources can be exploited. Such annual movements between dry and wet season camps are carried out by both newcomers and the locals. The main purpose is to move the animals away from the fields to avoid straying. Another objective is to reduce individual watering expenditures and to preserve the pastures closer to the deep well for the beginning of the dry season (Sutter, 1987:197). In the current context micro-nomadizations also refers to the frequent movements of camps within the range of the same borehole carried out during the dry season by the majority of FuutankoBe herders.

Nomadization over longer distances are, in principle, kept to a minimum. In years where rains and pastures are relatively abundant, most herders with moderate herd sizes prefer to remain in the vicinities of a single borehole. In years where fodder is insufficient, nomadizations over longer distances are employed. Although inherent in the pastoral lifestyle, it is obvious that nomadization is a risky undertaking, involving considerable obstacles for both family and herd. The individual decision to stay or move is therefore a calculated assessment based on a number of parameters. The most important are herd size and labor availability, access to markets for live animals and milk and disposal of sufficient technology. The advantage of limiting weight losses through nomadization must be balanced against the considerable constraints related to moving animals into areas to which they are not acquainted and where the number of predators make unguarded night pasturing of cattle more or less impossible. Finally, migrations over long distance practically inhibit engagement in agriculture or other supplementary activities. The complex nature of the cost-benefit analysis carried out by the individual herder certainly contradicts any assumption of economic and technological stagnation among Senegalese herders.

In recent years the number of herders migrating regularly over longer distances has increased considerably. This can partly be attributed to failing rains, especially in the Northern parts of the

Ferlo as was the case in 1991 and 1992. In that period the boreholes in the south were practically swamped by drought-ridden herders from the north. However, the number of migrations carried out even in relatively good years, together with the considerable length of the journeys, show that risks related to transhumance have diminished along with the spread of donkey carts and inner tubes. As stated by one herder:

> *"Many things have changed for pastoralism since 1973. This is due to the arrival of the donkey carts, the water inner tubes and the industrial feed concentrates[69]. All three ease mobility".*

It's difficult to make an exact evaluation of how transhumance patterns change, as peoples' decisions depend on a wide range of factors, from rainfall patterns to the age of family members. In our survey of 1995, we tried to investigate mobility patterns from 1988 and onwards. During 1988 and 1989 (years of good rains) the large majority (83 and 81%) of herders stayed at the same borehole all year round. In 1990 (rain deficit year in the north) 13% had moved. As the rain deficit cointinued in the year 1991 the number of nomadising herders increased slightly to 17%. This upward trend continued in 1992: Here the number of households going on longer transhumance trips increased to 21%, a trend which was similar in 1993 (21%). What was remarkable, however, was that in 1994, when rains had been normal all over the country, as many as 23% spent the dry season in the pastures of the Saluum[70].

This tendency to move more and earlier was also expressed during interviews with herders, notably among those from Djagueli:

> *"Before I stayed put in Djagueli, for I have seen that it's here that the animals develop. All those who have many sheep now go on transhumance every year. Its not possible for all the animals to stay in Djagueli all year round. There isn't enough of neither water or pastures. And more and more transhumants*

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[69] The use of agro-industrial by-products and feed concentrates to supplement the poor pastures in the end of dry season is another example of herders "unwrapping" of selected project interventions. Feed concentrates were originally promoted by various livestock projects as a means to improve milk production and increase fertility. It is now widely used by herders. In most cases, however, it is not applied systematically but is given mainly to weak and sick animals. In a survey carried out in 1989 by the author in collaboration with O. Touré 58% of the herders indicated that they used agro-industrial by-products and feed concentrates . Only 15%, however, indicated to use more than 50.000 CFA (i.e. 250 French Francs pr. year).

[70] A methodological problem arises, when trying to access mobility in the area of out-migration. In fact the number of households is likely to have been larger, than what is revealed, as some already might have left in April when the survey was made.

arrive. If we stay in Djagueli in the dry season the flock will not grow, and the lambs will die" (FuutankoBe from Djagueli on his way to the Saluum, 1994).

Nonetheless, nomadising continues to be a strenuous endeavour, where people easily walk 30 km's a day, and up 2-300 km in total to reach the pastures in the south.

What is most tough about nomadising is walking long distances. When the lambs are transported on the carts, you have to do the distance by foot yourself. Besides watering is too expensive. Animals have to be looked after at night so you have to stay awake and be on guard. What is tough is also that before installing yourself at a borehole you have to negotiate with the borehole committee." (FuutankoBe herder from Ranerou on transhumance in the Saluum, january 1992)

But also with regard to comfort, the FuutankoBe harders have been innovative. By the end of the fieldwork period, the growing popularity of large tarpaulin cloths from trucks became apparent. This turned out to be yet another sign of the increased importance of mobility. Being the owner of such a tarpaulin cloth enhances possibilities for mobility during the rainy season. One is no longer forced to return (or send some of the women) to the wet season camp before the rains start to collect dry grass to repair the old and damaged grass huts or to construct new ones. Now shelter can be found by making a sort of tent by draping the tarpaulin over one or two of the carts. As construction of huts is a both time consuming and meticulous work[71] this means sparing important manpower in th[72]e most intensive labour period of the year. This new practice is also important as it enhances the possibilities of short term mobility, 'to meet the rains'. This practice, which turned out to be carried out regularly by a majority[73] of the newcomers, considerably improves the productive conditions of the animals.

Apparently this new practice has gained momentum since the Mauritania/Senegal crisis of 1989 where tarpaulin cloth were distributed among the refugees to serve as tents. Due to the size of the investment (between 50.000 and 250.000 F CFA) they are, however, not within reach of all herders[74]. As was the case with Yerim Sow and his family, most herders continue to endure many

[71] According to the women interviewed it takes between 1 week and 10 days as it has to fit into their other tasks related to household and herd.

[73] 78% of the newcomers, according to the 1995 survey.

[74] Only 21% of the herders comprised in the 1995 survey indicated to have such a "tent". Apart from one case, they were all FuutankoBe households. 1 family claimed to possess 5 pieces.

rainy nights without shelter during their transhumance trips.

Apart from mobility directly related to drought or the breakdown of borehole pumps, movements generally aim at reducing weight losses during the dry season. It is especially the search for leguminous plants, preferably *Zornia glochidiata*[75], a leguminous plant that is particularly appetizing for smallstock, which motivates herders to extensive nomadization. FuutankoBe herders may travel several hundred kilometers south of their usual zone of interest to reach areas with large stands of *zornia*.

> *I take my flock of sheep and goats to the Saluum every year in the dry season. My cattle herd stays with my brother back home in Ganina where the pastures for cattle is better. For the smallstock it is good to leave to get access to zornia and to browse the tree foliage. But it's important to be back for the rainy season. If not your animals will not reproduce properly*". (Transhumant herder from Ganina, april 1995).

Marketing strategies.

Obviously this considerable increase in labour input in the new small stock based herding systems is motivated not only by the higher reproduction rates of small stock. It is also caused by the substantial rise in market value of notably sheep, which has been experienced during the last one or two decades[76]. According to calculations made by Tyc (1994:43) the financial productivity of sheep is estimated at around 5,000 CFA pr. animal pr. year as compared to 9,400 CFA pr. cattle and 2.500 CFA pr. goat[77]. However, due to the higher reproduction rate of sheep, a herder

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[75] *Zornia glochidiata* has spread on the Sahelian pastures of Senegal since beginning of the seventies. Its proliferation was by some researchers (Barral 1982, Santoir 1983: 80) considered as a sign of range degradation. Herders were equally hesitant to use the pastures as the young shoots can be toxic (Thebaud:28). At present *zornia* is cited unanimously by herders as one of the best types of forage for sheep. Another valued species is *Borreria radiata/Borreria stachydea*.

[76] In 1992 mean prices for adult males (The most expensive category) registered on Senegalese markets was 368 F CFA per live kg for bulls, while adult rams were sold at an average of 712 F CFA/live kg. Young females (cheapest categories) were sold for 322 F CFA/live kg (calves) and 570 F CFA (sheep) Source DIREL annual report 1992.

[77] These figures relate only to meat production. If milk production is added a calculation of financial productivity gives:
15.740 CFA for cattle (28 kg of meat a 335 CFA/kg and 53 kg of milk a 120 CFA /kg)
5.824 CFA for sheep (11,2 kg of meat a 520 CFA/kg and 4,4 kg milk a 120 CFA kg)
2.144 CFA for goats (6,4 kg of meat a 335 CFA/kg and 7,9 kg milk a 120 CFA/kg).

disposing of few heads of cattle but an important flock of sheep is better off than a herder with a majority of cattle (Thebaud, 1994:19). This has been confirmed by other producers:

> *"One is better off with 10 cows and 100 smallstock than with a cattle herd of 50"* (herder from Mbiddi,1989). *"With 100 head of smallstock you can have 30-40 lambs every year"* (Wolof Peasant, Dodji sept. 89.) *"If you sell two sheep you can buy one heifer, with three a cow"* (Tessekre 1989).

In addition, small stock is easier to commercialize, especially at village level, and they are, in contrast to cattle, usually paid for in cash. Furthermore, the revenues from sale of one or two heads of small stock tend to fit better with the cash needs of the head of household, who is under considerable pressure from his family members if a large animal is sold and large quantities of unspent cash is available. As stated by one herder:

> *"The sheep is closer to the mouth, you can slaughter if you have visitors and sell it if you have needs"*.

Finally, commercialization of rams for religious feasts is a rapidly growing market. There were particularly favourable marketing conditions after the 1989 crisis between Mauritania and Senegal which led to important reductions in imports from this important producer[78]. Prices of rams skyrocket on the eve of Tabaski and the prices of a big ram in the Tabaski season will easily reach three times that of an adult female.

Making a good "Operation Tabaski" might be extremely lucrative but is also a gamble. During 1990 and 1991, many herders were seriously trapped when rumours of prices up to 50,000 F CFA per ram where reported from Dakar. Around the boreholes, the air was thick with rumours of enormous profits made overnight. The case of one particularly rich and entrepreneurial herder who had been able to sell 4 million CFA worth of rams in order to buy a 4-wheel-drive truck for public transportation (taxi-brousse) particularly intrigued many herders. Many local producers therefore rushed to buy up large quantities of rams to supplement their own produce and to hire trucks to transport large flocks of rams to the capital. Here fodder had to be purchased just as the installment and surveillance of the animals had to be paid for. Supply, however, quickly exceeded demand and many harders were forced, at considerable loss, to move their animals back to the

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If calculated in terms of Tropical Livestock Unit (TLU) i.e. a ruminant of 250 kg, the financial productivity of 19.675 CFA for cattle, 60.495 for sheep and 38.650 CFA for goats (Tyc, 1994:43-44).

[78] In 1988 the annual demand for rams at Tabaski was estimated to 320.000 head. It is estimated that local production is sufficient to cover demand in Senegal.

Ferlo again. In fact, 25% of the rams available on the market in 1991 were not sold[79]. . Nonetheless, it seemed that pastoralists were increasingly learning how to carry out the operation[80] and many of those interviewed indicated the intention to group their rams in order to sell them at favourable prices on the eve of Tabaski.

This is another sign of pastoralists being extremely speculative in their herd management and marketing strategies. Rather than autarchic, herders must be characterized as fully market integrated and adapt to the new opportunities offered by the expanding market. This rapid switch from cattle to sheep-production conveys a quite different picture of the entrepreneurial and market-oriented herder than the one created by the cattle-complex narrative.

The new herding strategies and the orthodoxies of overgrazing.

Inspired by the success of the FuutankoBe herders and the new and interesting market opportunities, the original inhabitants in the Linguère and Matam area are now beginning to copy the FuutankoBe herding strategy. As a result, the livestock population, the stock composition and the geographical distribution of the herd have been substantially modified during the last two decades.

According to figures from the National Department of Livestock (Direction de l'Elevage, DIREL), the growing importance of sheep and goats in the southern part of the Ferlo has resulted in an increase of 162% in the smallstock population in the Département of Linguère from the pre-drought level in 1971 (286.000) to 1993 (751.200)[81]. Part of this boom may be attributed to a transfer of animals from the north to the southern fringe of the Ferlo. According to Santoir (1994:233) the density of smallstock in the south has increased five times between 1970 and 1990 (from a density pr. km^2 of 8 to a density/km^2 of 41 in 1990) This is in contrast to a far more moderate development in the North from 24.5 in 1970 to 34.4 in 1990.

The same tendency may be observed for cattle, although in a less spectacular manner. Here the movement is from 10 head of cattle/km^2 to in 1970 to 12.4 heads of cattle/km^2 in 1988. In the

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[79] See ISRA, 1992: Groupe de Travail sur l'autosuffisance en moutons de Tabaski au Sénégal, Mars 1992

[80] At the end of my fieldwork in spring 1995 I witnessed how one (indeed very well organized) family was able successfully to carry out the transfer and commercialisation of several hundred rams in Dakar during an interval of only two days before the Tabaski feast.

[81] Source: DIREL, Dakar (unpublished). Unfortunately movements within the *département* of Matam are difficult to measure, as the *département* comprises both the area of departure and the area of reception.

North development has been directly negative, from 20.2 heads pr. km^2 to 12,7 in 1988.

As a result of this development, herd composition has altered significantly after the drought. According to Santoir (1994:234) cattle exceeded smallstock in numbers in the northern half of Senegal until 1968 (in the Department of Linguere until 1968). In 1994, one finds 35 heads of cattle to 100 heads of smallstock in Senegal north of the Gambia[82]. Preference is given to sheep rather than goats, the relation between the two species being approximately 1 to 2.3 (Tyc, 1994:8).

According to mainstream range management orthodoxies such rapid increase in the number of animals grazing inevitably leads to overgrazing, range degradation and ultimately to desertification, not the least in an area, as the Ferlo (and further to the South, the Saluum), where rangelands have been severely diminished through the perpetual process of agricultural encroachment.

Contrary to these widely shared orthodoxies, the increased number of animals browsing on the range does not seem to limit the amount of pasture available. In fact, migrants and sedentary herders alike recognize the positive impact of migrant herds contributing not only to open up new lands for pasture but also to improve the quality of the range.

The logic of this statement is the following: In order to find pastures which have not been trampled, the egge-egge herders usually settle far away from other herders and in considerable distance from the borehole. Consequently, they often penetrate into areas formerly dominated by dense bush vegetation[83]. According to the herders, browsing sheep in such areas tends to clear the bush so that high quality pastures can come up with the next rains:

> *"The egge-egge who came in 1983/84 contributed to the formation of large stands of Zornia in the bush areas of Velingara. The areas where they settled in great numbers is where you now find zornia in large quantities. These species are highly appreciated by smallstock".* (Agro-pastoralist, Velingara febr. 1993)

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[82] Measures at local level confirm this tendency. In 1982 Sutter measures a ratio of 1 head of cattle to 1,1 head of small stock in Gueye Kadar in the eastern Ferlo. Recent figures from a census made in Bouteyni (Northwestern Ferlo) show a herd distribution significantly in favor of sheep with a cattle/smallstock ratio of 1 to 3,7 (i.e. 2,8 sheep and 0.9 goat) Thebaud 1994 p.16.) Data from the systematic reconnaissance flights of 1992 on the Linguere department display a ratio 1 head of cattle to 2,8 small ruminants in 1992 (215.022 heads of cattle to 602.297 heads of smallstock (CSE 1992).

[83] These movements into dense bush areas is likely to have a negative impact on the habitat of wild animals. This problem is however not the scope of the present article.

The results of a study carried out by Carl Bro Int. in Koungheul in 1988 point in the same direction. Here the most frequent answer given by the local (sedentary) population when asked to compare conditions of pasture before and after the drought, was that pastures were much better now. This was attributed to the reduced number of trees leaving more space for pasture[84] (Carl Bro Inc., 1988:10.6).

Research during 9 years in the GTZ project of Widou Thiengoly in the northern Ferlo confirms these statements. Contrary to the expected impact, regeneration of pastures turned out to be lower in those fenced areas where grazing pressure was controlled and reduced than it was in the areas subject to "normal" grazing. In years of consecutive good rainfalls (such as 1988, 1989 and 1990) controlled low grazing proved directly harmful for pastures. The explanation seems to be the following: When the range is not grazed sufficiently, the grass left over from last year will bend when the rain starts. When such grass covers the ground proper germination of graminaceous and leguminous species is hampered (Tluczykont, 1991:41). Quality and stability of pastures in the controlled and enclosed plots thus proved to diminish significantly during 3 successive years of good rainfalls. Some of the most drought resistent and nourishing graminaceous and leguminous plants tended to disappear to give way to other graminaceous species browsed only in the rainy season and with little or no nutritious value as fodder reserve for the dry season (for example *Schoenefeldia gracilis*). This was apparently an effect of hardening soils due to limited trampling[85].

At present nothing seems to indicate that the increased number of animals grazing in the southern part of the Ferlo is leading to range deterioration. On the contrary, the new water transportation tecniques enable herders to disperse their camps in the bush, spread their animals over a larger area and exploit formerly under-used pastures. Range deterioration is therefore likely to be insignificant in comparison with agro-pastoral and more sedentarized production systems where animals are concentrated around the village.

Competition for natural resources and conflicts over access.

As mentionned the introduction of cart and inner tube has provided a substantial boost to the pastoral production systems of the Ferlo.Nonetheless, the increased mobility it engendered has also given rise to increased competition and conflicts over water and grazing resources, both in

[84] In the report, this answer was however ascribed to a lack of consciousness of the scarce fodder resources.

[85] A reduction of the reserve of seeds from drought resistent species led to an almost total loss of primary production the first dry year after a cycle of years with good precipitation (ex. 1990). It is not known how long the recolonization of pioneer species takes. (S. Miehe: Inventaire et suivi de la vegetation dans les parcelles pastorales a Widou Thiengoly 1988-90).

the area of "settlement" and in the areas targeted during the transhumance trips in the area.

Many villages experience genuine invasions of foreign herders in the dry season. This is particularly the case of those located in the narrow tract of land through which all transhumants going to the Saluum[86] have to pass; between on the one side the Ferlo Boundou, where wells are too distant to one another to provide a transhumance route, and on the other side the fenced area of the huge state owned fattening ranch, the Ranch of Doli (see map 5).

Conflicts can be ascribed to differences in range management practices. As part of a risk management strategy farmers and agro-pastoralists in the Southern Ferlo have tended to put more emphasis on livestock during the last two decades. Consequently, the number of cattle found in the southern half of Senegal now exceeds that of the traditional cattle breeding areas in the north (Santoir, 1994:232)[87]. Where herders on transhumance from the North formerly represented an opportunity for these farmers to get their fields manured, most farmers now possess at least some animals themselves. As former ethnic specializations disappear, reciprocal arrangements such as manure contracts lose importance and the general environment becomes more hostile to receiving transhumant herders.

The following statements by herders in the area confirm these changes:

> *"Before transhuming herders were well received. You were even given part of the groundnut harvest if you would let the animals manure their fields"* (FuutankoBe herder Fourdou 1993).

> *"Transhumance is more difficult now. There is more jealousy and competition than in 83/84. At that time, people in the south were agriculturalists and hunters rather than herders. It's now, that they have started copying on the newcomers and have large herds of smallstock themselves , that the problems arise".*(Transhumant herder from Mbiddi interviewed in Loumbi Aly Tedy 1993).

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[86]The area described as the "Saluum" by the herders is the area from Velingara and Thiel to the Kaolack-Tambacounda road (Ribo, Payar, Loumbi, Koungheul and Tambacounda Nord).

[87] In general cattle densities per square kilometer in the dry season are highest in the most densely populated area, in central Senegal, the so-called Peanut Basin (departments of Diourbel, M'Backe, Mbour and Kaolack (respectively 27, 29, 30 and 26 head of cattle per square km.)). For smallstock the Peanut Basin also provided the highest densities in the dry season of 1989/90. The highest densities were found in Bambey Diourbel and M'Backe (respectively 34, 33 and 29 heads per square km.)(CSE doc. NT 91-02 1991) A large part of these animals are owned by sedentary farmers.

The changing herd composition has further added to the problem as FuutankoBe herders today rarely accept attaching their animals on the fields and grazing the stubble. Contrary to the past, when cattle dominated the transhumant herds, today's herds of predominantly smallstock need other types of fodder than what is likely to be found in the vicinities of the fields. As the range of daily movements for smallstock is shorter than it is for cattle, the disadvantages of settling on field, usually located in proximity to the well or borehole, are considerable. Herders are now more attracted to living in the bush rather than close to areas of agricultural production.

The FuutankoBe strategy of dispersing their camps in the bush impacts on the range management strategies employed by indigenous households. As mentioned above indigenous herds are usually grazed in a "centrifugal" motion from a fixed dry-season camp located close to the borehole (Sutter, 1987:197). As the dry season progresses animals frequent still more distant pastures. With the installation of FuutankoBe camps in the bush these animals are likely to reach pastures already grazed and trampled by the FuutankoBe herds. The obvious result is that the FuutankoBe herds tend to be in much better shape then the "local" animals. To the more sedentarized indigenous populations the FuutankoBe micro-nomadisations is unfair competition. It has therefore contributed to hostility and jealousy towards the newcomers.

At some boreholes indigenous herders have tried to control access to pastures by forcing newcomers to install their dry season camps at the same distance from the deep well as their own camps and preferably on their fields in order to take advantage of the manure. But such settlement is incompatible with their herding strategies and FuutankoBe herders have generally refused, pleading the free use rights to the range affirmed in the 1964 law code.

Where well committees have managed to enforce this "controlled settlement" it has in fact turned out to be a double-edged sword as it implies a considerable limitation of the radius of pastures grazed. Once the accessible radius of grazing is devoured the FuutankoBe herders move on, leaving the sedentarized population to cross large areas denuded of herbaceous vegetation before reaching adequate pastures. In such cases, otherwise settled agro-pastoralists may be forced to nomadize once the fodder reserves in the area of residence are exhausted. Such forced migrations often involve considerable constraints as many agro-pastoralists do not dispose of sufficient manpower nor of the necessary equipment in terms of donkey carts and inner tubes. They also risk facing considerable losses in revenue as they are unable to pursue their usual supplementary income generating activities.

As can be seen from the following quotation, disconcertion among the local population with regards to the possibilities of regulating access is great:

"It ought to be a task for the Rural Council to monitor the installation of

foreign herders. It would be good to install them at the same level as the firstcomers instead of letting them settle scattered in the bush. This has been tried for instance in the village of MalemBa in the Saluum. However, even there it ended being an expensive experience for the firstcomers. For once the pastures was devoured, the newcomers went elsewhere leaving the local animals in very poor conditions. The best solution would be to have more rains. But as it is, the best is maybe the way it works now, where newcomers settle where they want. In that way the most densely populated areas are spared and they leave once the pastures are exterminated. (Agro-pastoralist, Velingara febr. 1993)

Such forced transhumances may also be prompted by the breakdown of the borehole motor pump. Due to the old age of the majority of the motor pumps, the constant pumping to supply sufficient water for the large number of animals results in overheating of the motor and to frequent breakdowns. In such situations all herders are forced to migrate to neighboring pumps for shorter or longer periods. Such forced migration can be very strenuous especially for small herd owners, who may easily lose a large part of the lambs under such a trip[88].

The large number of foreign herders scattered over the bush also represents an inconvenience with regards to the supplementary activities of the sedentary population, such as the collection of gum arabic. This contributes to create a climate of distrust:

"Transhumants do not fit well with the collection of gum arabic. They will not refrain from settling in those areas where the gum producing acacias are located. This year I hardly harvested any gum. Production was generally low, but on top of that a large part was eaten by foreign goats transhuming in the area, while another part was collected by the owners of the goats. Everybody knows that the transhumant herders sell gum, we just haven't caught anyone selling it, yet. They are in conspiracy with the gum traders." (Sedentary agro-pastoralist, Ranerou, January 1992).

Finally the population increase created by the influx of foreign herds inevitably contributes to inflate the number of cases of animals straying in the cultivated fields:

"When the egge-egge arrive during the cultivation season, there are many cases of field damages. Herders do not respect the cultivation zones, but it's also because people make their fields all over the pastures. There is no system

[88] As an example: one respondent claimed to have lost 20 lambs and kid during one month were he had to move to another well. (Loumbi Sanrabe , May 1990) Other interviews revealed similar losses.

of regulation and no text on the basis of which a regulation could be made. I think it would be a good idea if foreign herders could be chased away during the cultivation season. At that time neither watering or pastures pose any problem. But it is not good to chase away everyone. That would be to transgress the traditional solidarity among Fulanis" (Agro-pastoralist, Thiargny, Febr. 1993).

The question of field damages is a very serious issue during the rainy season. In the areas of predominantly pastoral production, field damages are usually negotiated directly between the offender and the field owner. In many cases, especially if the plants were still small, the field owner is likely "to forgive". Otherwise a compensation is paid based on an estimation of the value of the harvest lost. Only in those cases where the two parties are unable to reach a mutual understanding are the authorities, i.e. the village chief or ultimately the sous-prefet and the extension officers, involved in the conflict settlement. Nonetheless, the problems increase the further one moves south and agriculture gains momentum.

This, indeed very interesting, issue of field damages and their settlement is, however,beyond the scope of this dissertation, which is concerned primarily with herder-herder issues. As is underline in the quotation below, straying relates to (a slightly) different problematique.

There is no regulation of the location of transhumant camps. Everybody settles where he wants. Once the pastures are devoured, the herders are forced to buy animal fodder. Here 20% of the population are Wolof cultivators. There are problems of animals destroying the fields, but at least the farmers get a compensation for what has been destroyed. The inconveniences related to the arrival of FuutankoBe herders are felt more by the [local] *Fulani population who get no compensation for the increased competition on pastures. However, it's also the Fulanis who have harvested the advantages of copying on the new system"* (President of the well committee, Ribo 1993).

Adaptation to new opportunities.

"Certain local people make a profit on the transhumants. They serve as their host (diategui) help them to water the animals and take care of part of their herds. Some people are favorable towards the newcomers, others are against. The shopkeepers are always in favour" (Veterinary assistant, Velingara, february 1993.)

As underscored in the two quotations above, the arrival of the Egge-egge has not only brought conflict, but also new prosperity to at least some of the local inhabitants. First of all many agro-pastoralists involved in trading livestock or consumer goods have been able to extract considerable

benefits from their enlarged clientele. Agro-pastoralist are able to barter their surplus grains with FuutankoBe herders for either milk or animals on favourable conditions. Finally the arrival of large groups of rich transhumant herders provides a considerable boost to the weekly markets in the areas of reception.

The new herding strategies developed by the FuutankoBe herders have also given rise to innovations within the indigenous herding systems. The raising of smallstock is gaining momentum among the indigenous populations and more labour is invested in surveillance of the flocks. (As could be seen in table 3, 25% of indigenous herders now possess flocks of smallstock of more than 50 head while a large group possesses even more). In order to make better use of the available pastures many of these herders have also started to move their camps further out in the bush in the dry season. Finally, the practice of micro-nomadisation during the dry season is being taken up, even by agro-pastoralists in the south.

> *"The habits of the local population have changed a lot since the people from the Fuuta arrived. Before they had little livestock, maybe 2 cows and 2 sheep, which were not guarded. After they saw the well kept herds of the newcomers, they bought a cart and installed themselves in the bush. Some are even starting to move southwards during the dry season."* (FuutankoBe herder, Fourdou, february 93).

The innovations brought about by the FuutankoBe herders in terms of increased productivity, easier access to otherwise unexploited pastures though improved conditions for water transport and mobility has brought about new opportunities as well as new constraints for the producers of the Ferlo region.

The change of emphasis towards smallstock has turned out to be more difficult to combine with agricultural production than cattle raising. In april 1993. members of the well committee of Loumbi Aly Tedy explained:

> *"It is the smallstock that provokes problems. Before we had mainly cows and maybe 5 heads of smallstock besides. But since the droughts of 72/73 and 83/84 we started having both small and large stock. Now we are forced to do as the FuutankoBe. We are forced to live in the bush and to transport water. Now we have more beasts but they are not in good shape and give less milk. In general the sedentary Fulanis have 5 time as many animals as before. Add to this the animals belonging to transhumants. No wonder the pump has difficulties".*

Their colleagues from Ribo added:

"It is mainly the ways in which the herds are managed which has changed. Now people live out in the bush and have increased surveillance of the animals. It is difficult to combine this form of herding with manuring of fields. Animals get thin if they are attached when competition on pastures is high as now. It is no longer possible to convince migrating herders of making manuring contracts. They want to ensure the well-being of their animals."

The shift in herd composition and intensification of herding practices poses a number of problems for agro-pastoral producers. Previously, animals were herded during the rainy season, or were kept together in a village herd which was moved to another area to avoid trespassing into the fields. Now the individual agro-pastoralist has too many animals to be leave supervision of the flock to a village herder. Instead he is forced to find labour for this task within his own household. As described with the agro-pastoral systems in the *waalo* this may create bottlenecks in peak productive periods. Instead of creating closer linkages between the agricultural and pastoral activities, by increasing yields though manuring and fattening of animals on farm by-products, some households appear to be 'delinking' these activities. Animals are fed almost entirely on fodder from the bush and are kept at considerable distances from the fields. Hence, it is the opposite process of the much praised intensification through livestock-crop integration 'on-farm'[89] which is at stake. It should however be kept in mind that use of manure has never been very developed in these areas, where population densities are low and land still readily available. In many cases manuring has mainly been applied to the fields of the village chief who was responsible for the village.

The different distribution of workloads between the sexes among southern Fulani clans also complicates adaptation to the new system. Among the nomadic clans from the north such as the FuutankoBe, fetching of water and building of new huts (a considerable task during longer transhumance journeys) is the task of women. Among the southern clans more devoted agro-pastoral activities, these tasks, which increase considerably in the new herding system, are supposed to be carried out by men. Such a re-organisation of the labour division between sexes, may not neccesarily be an advantage for the women.

"It's only the last 3 years that the local HaaboBe herders have started nomadising to get closer to the pastures. But it's very hard. Among us, the HaaboBe, all work related to the herd is the mens' job, Fetching water, milking, and even making huts. With the FuutankoBe much of this is the task

[89] McIntyre et al., 1992; McCrown et al., 1979 quoted from Scoones ,1994:12).

of the women. I think that with the new system, even our women will have to change". (HaaboBe agro-pastoralist, Loumbi Aly Thedy, Senegal Oriental. febr. 1993.

Conclusion:
The drought as a watershed effect:

The profound changes, in relation to the great droughts of 1972/73 and 1983/84, which migration had on the production systems in the area of reception justifies treating this period as a watershed event. Through the movement southward and the transformation of their herding systems, the 'drought victims' managed to improve their livelihood significantly and to limit their vulnerability against future calamities.

The arrival of the large number of drought refugees from the Fuuta area, profoundly altered the social relations in the area of reception. The newcomers quickly installed themselves as an economically more consolidated group than the firstcomers. They managed to take advantage of the new opportunities offered by the drought. As expressed in the quotation by Yerim Sow: "the drought enabled herders to get acquainted to new pastures". By means of technological innovation, the herders who were evicted from the Senegal River Valley by the effects of drought and proliferation of irrigated agriculture, proved not to be passive 'victims' of the drought but rather active agents engaged in examining and taking advantage of the new possibilities offered.

Although conflictive in many ways , the reception of a large group of foreign herders also proved to be advantageous to the local population, who were able to copy on the improved herding systems put into effect by the newcomers. So to return to the views of Solway, there can be no doubt that changes in practices and in meanings have arrived to a point where it is unlikely that a return to a situation 'before drought' is on the agenda for any of the two parties.

Characterizing the post-drought situation in Senegal as a watershed event, does not imply any inclination towards interpreting the changes in terms of an epochal change (as described by Morton in chapter 2). Rather than establishing the drought as a sort of fictive reference-point, which relates traditional and harmonious pre-drought societies with current post-drought turmoil, the notion of watershed event implies the recognition of a turbulent past. As could be seen in the brief historical introduction of the Ferlo, also the past is characterized by many turbulent events, such as the introduction of boreholes or agricultural encroachment. All of these have contributed to alter the production systems and the prevailing social relations. Similarly, the shifting climatic conditions (in terms of increasing or decreasing aridity) have been followed by adjustments or modifications of the production patterns.

But as shown above, development in the region has often taken courses that where different to what was anticipated. The expansion of groundnut production did not entirely squeeze out the herders from the southern Ferlo, for some it even provided an opening towards new production opportunities. The herders did not become entirely sedentarized once the boreholes enabled them to stay year round in their wet season camps. As was the case with the boreholes, originally devised as 'cafeteria stands' along the cattle marketing routes, or the industrial fodder packages geared towards fattening selected animals, herders have been swift to adopt these innovations as part of a general risk-reducing strategy. Nonetheless, this adoption has bnot taken place uncritically as herders have been quick to 'unwrap' the technology or opportunities provided to select those parts of the 'package' which fitted into their general aims of enhancing the productivity of their herds. This process of unwrapping could also be observed in the recycling of tubes and tarpaulin cloths.

By the same token, producers have proved to be able to adapt quickly both to shifting ecological regimes and to the changing demands of the market. This flexibility and adaptation of course strongly repudiates any reference to pastoral production systems as being timeless, conservative and autarchic as conveyed in the narrative of the cattle complex.

The way in which the herders have adapted their herd management system to the changing ecological conditions also gives a somewhat more dynamic picture of the relation between the herder and his environment than the image of pastoralists as holders of the one and only form of resource exploitation in balance with the 'harsh and fragile' ecological environment of semi-arid lands, as presented by many 'environmentalists'. Rather than deducting the systems of production from the nature of the environment, it seems more fruitful to look at the many different kinds of adaptation which are put into work by the resource users. For as stated in the introduction, many interdependent influences determine the particular outcome of a process of adaptation. It is therefore necessary to stress multi-causality and the interaction of many different factors in order to understand the processes generating human action.

As emphasized by the 'new ecology' and chaos theories, non-equilibrium systems are profoundly affected by changes external to them (such as drought) and continually controlled by the unexpected. Therefore constancy of behaviour becomes less important than the persistence of relationships. Instead of focusing on drought as a rupture of old practices it becomes important to look at the ability of the system to adapt. And as could be seen above, the potential for resilience and adaptation of both ecosystems and production systems in the Sahel have shown to be significant, making any reference to the fragility of the eco-system utterly misleading.

The success story of the FuutankoBe herders was largely unpredictable. An analysis of the process through a crisis scenario in which ends are given beforehand therefore makes little sense. As has

been shown above, the situation of pastoralism in Northern Senegal cannot be analysed only as a function of the perpetual encroachment of the area through agricultural expansion. Due to technological innovations, mainly in terms of improved water transportation, more animals are now able to survive on a smaller area. In most years, they even become fat enough to ensure high reproduction rates. Although important pastoral key resources were lost as irrigation expanded in the *waalo*, herders have shown a remarkable ability to adapt to the new conditions. The pastoral area has so to say been "enlarged from within" as new production opportunities have been seized by a large number of herders. Greater mobility as well as increased use of industrial fodder, mineral supplements and veterinary medicine have provided at least partial compensation for the resources lost and have rendered herders less vulnerable to future droughts. As a result, the large majority of FuutankoBe herders indicate they have become richer than they were before the drought forced them to migrate southward, a trend which is also admitted by a number of sedentarised herders. In contrast to the development in a number of other Sahelian countries, herd ownership has not been transferred to absentee herd owners but has been kept in the hands of highly skilled and specialized producers with in-depth knowledge of their environment.

The arrival of a substantial number of transhumant herders as well as the generally increased mobility presents a number of disadvantages for the more sedentarised segment of the Fulani society. But it has also created new opportunities which have been apprehended by the most dynamic layers of sedentary farmer communities. While it remains important to document the increased pressure on resources due to loss of rangelands to, mainly agricultural, production it is equally important not to underestimate the ability of pastoral societies to adapt through technological innovations. As stated by Leo Strooschnijder:

> *"The production level that can be reached and the number of people that can be feed without destroying the natural resource base is everywhere more a function of production technology than of the renewable resources."(Strooschnijder, 1994:6)*

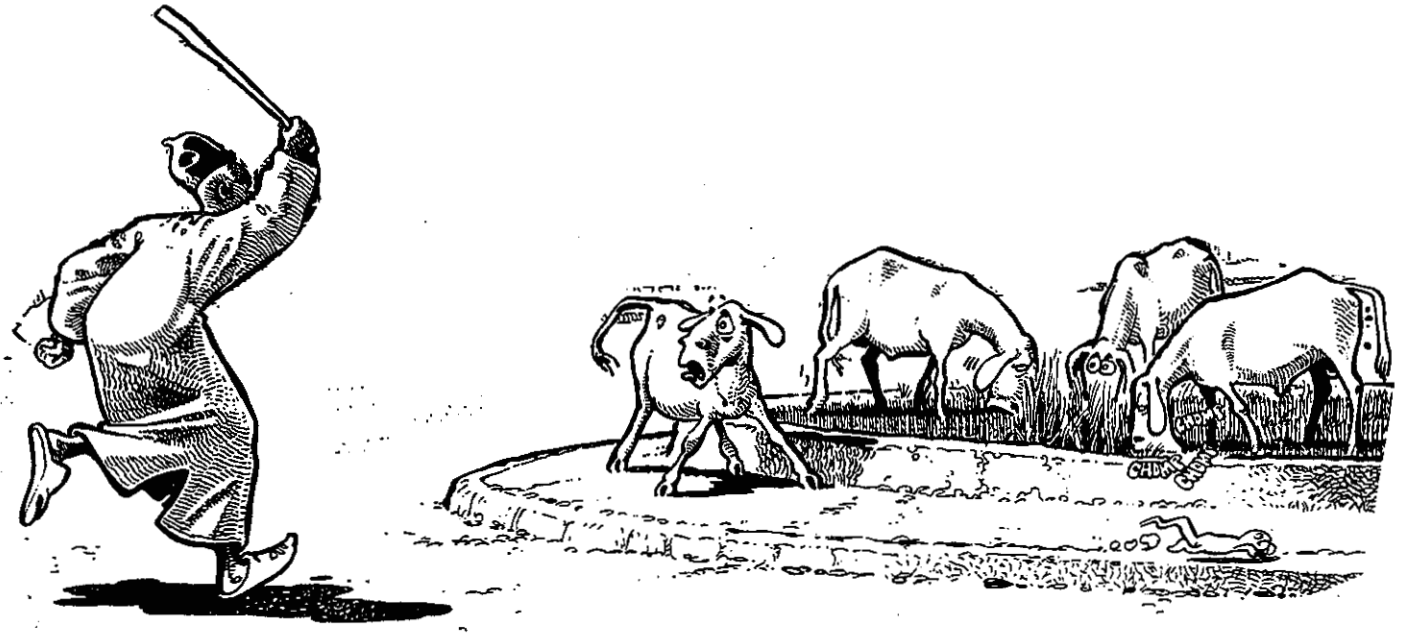
In view of the important changes taking place in post drought pastoral society it appears useless to continue discussions on basis of a scenario according to which pastoral societies are growing increasingly vulnerable to drought (ref. Moorehead, 1991; Lane, 1994; Thebaud, 1993 and others). This is not to underestimate the less favourable effects of the present development: for instance the exfoliation of those segments of pastoral society which have been unable to accumulate sufficient livestock to participate successfully in the increased competition, or the difficulties experienced by producers more oriented towards agricultural production, or the loss of habitat for wild mammals and birds when bush steppe is transformed into pastures etc. It is, however, important to recognize the basically healthy state of the pastoral production system and herdsmen's capacity to renew and adapt, even without outside interference. If this is omitted, blind

spots affect our analyses.

In view of this, the increasing number of conflicts related to resource management should be treated as problems inherent in a highly competitive system where "modus vivendi is guided not only by mutual interest but by the balance of forces". (Khazanov, 1983:35). In these highly individualistic societies, the "symbiotic" and "reciprocal" relations between herder and farmer communities as well as the mutual solidarity between herders often turns out to be a simple correlation of forces whereby the stronger is guided exclusively by their own interests and needs without any considerations of the weaker. This is to some extent what is happening with the well committees where individual economic interests rather than collective ecologic concerns determine the present policy. It is this issue that will be treated in the following chapter.

Chapter 5.

Strategies and manoeuvres to gain access to and control over resources.



Chapter 5:
Strategies and Manoeuvres to gain access to and control over resources.

The findings of the previous chapters clearly showed that the actual state of pastoralism in Northern Senegal is not usefully addressed in terms of a crisis scenario. Obviously, the influx of a large contingent of mobile and very specialized herders has not been taking place without conflicts, as will be discussed in further detail below. This does not, however, alter the fact that in the case of Senegal, drought acting as a catalyst for technological innovation has provided for a substantial boost to the pastoral production of the Ferlo. The increased competition for resources provoked by the growth in animal and human population was to a wide extent compensated for by the new and highly mobile herd management strategies which allowed for rising prosperity and improved risk and resource management not only among the migrating herders but also among the original agro-pastoral population. But by giving rise to a new class of very rich pastoralists of which the majority are to be found among the FuutankoBe population, the technological innovation also contributed to alter the existing social relations.

Hence, the adaptation of the new pastoral production system also brought about new exigencies in terms of realignment of political authority and of rights and control over resources. This will be the theme for the present chapter. For although successful individual economic performance may be a great help, it is seldom enough to secure access to resources. Herders also need to improve the level of control over resources in the long term. This depends on investments in social relations understood as the ability of the individual to gain influence over decisions regarding resource allocation and resource distribution. Opportunities for such political and social adjustment have to a wide extent been provided byless spectacular events in the aftermaths of the drought, such as for example the more localized drought of 1991-93.

As will be illustrated below, an immediate effect of this proces of adjustment has been that conflicts between first-comers and newcomers have intensified in recent years. Since the beginning of the 1990's, it appears that the normative codes of Fulani solidarity, according to which water and pastures are open to anyone and denial of access is considered shameful, have come under particular hard pressure. On the other hand 'foreign' herders are increasingly trying to convert their newly acquired wealth into social capital in order to increase their political influence and the control exercised over the productive resources. Only a few of these struggles of political alignment erupt into open fights. Many of them tend to pass unnoticed as few of them involve the participation of local representatives of the state apparatus. Instead they are fought as struggles over meanings attributed to key statuses, principles, codes and customs, as part of a social and political manoeuvering. Such

social manoeuvering is, however, often hampered by local conceptions of rights and obligations as denial of for example accces to well or pastures may require rationalizations that are not shared by the population as a whole. In such situations, events such as droughts may, as will be shown below, act as pretexts for transgressing or altering previous codes of social behavior.

In order to introduce the reader to the ways in which the proces of political realignment is taking place, the chapter starts by narrating the case story of the well-comittee of Naoré. This conflict is in many ways typical for the manner in which struggles over access and control over political and productive resources is taking place. It gives a good picture of the ways in which political alliances are generated across and between the different categories of users just as it illustrates how the locus of political conflict has shifted since the arrival of the 'foreign' herders. The Naoré case is in no way unique. Rather it is similar to many other conflicts or events encountered during my fieldwork. Nonetheless, it has 'unfolded' itself more thoroughly than the other cases. So in order to avoid too much confusion I have therefore chosen to use this case as the prime reference in the analysis, making reference to other similar cases primarily when specific events or detail need to be highlighted.

As shown in chapter 3, it is standard within the Common Property school of thought to attribute local communities the ability to generate institutional arrangements that ensure sustainable and optimal resource use. This stems from a vision of the communities as sites of consensus and sustainability. Where local resource management arrangements are less successfull, this is often attributed to the obtrusive effects of state interventions which are liable to undermine the authority of otherwise well-functionning traditional resource management institutions. Departing from the case of Naoré, the validity of this conviction is examined in order to understand the 'institutional climate' into which the migrant herders were to be inserted. First of all, the institutional framework governing the crucial resources in pastoral societies i.e. water and land, will be discussed, as will the social affiliations affecting land use and control. Secondly, the extent of state powers in the Ferlo will be addressed.

After this excursion, the discussion on the political and institutional repercussions of post--drought migration will be resumed. With emphasis on the rising level of conflict observed during the third wave of migration, the dry years of 1991 to 1993, the tactics of the firstcomer population vis á vis the migrants will be discussed as will the reactions of the newcomers. On basis of these discussions the nature of the proces of political realignment will be analysed.

An example from real life: The borehole of Naoré.

During the dry seasons of 1994 the borehole of Naoré, located in the arrondissement of Ogo in the Matam departement was the scene of fierce hostilities between rival groups of herders. At the height of tensions young Fulanis could be seen patrolling around the borehole with drawn machetes. At several occasions the police forces from Matam were called out in order to avoid bloodshed.

The conflict arose when members of the local community sent a letter to the sous-prefet of Ogo to protest over the seizure of the local well-committee by herders who were foreigners to the zone. This seizure had happened in conspiracy with the President of the well-committee who during his ten years in office had held no general assembly or election to the board of the well-committee. In the course of the years members of the original board who had withdrawn or died, had simply been replaced by the president by members of his own choice. The result was, according to the critics, an over-representation of FuutankoBe herders and of Mauritanian refugees.

According to the legal framework relating to the local management of wells, the mandate of the well committee is only for 2 years after which new elections should be held. In consequence of the protest from the population, the sous-prefet therefore felt obliged to dissolve the old committee and appoint a new one. This was carried out at a meeting in February 1994, with the presence of 5 village chiefs (including the old president of the well-committee in his function of chef de village of Naoré central), a representative of the FuutankoBe population and a representative of the refugee population. According to the official record (*Proces verbal*) the aim of the meeting was: to settle the "legitimate claims of the Senegalese users to hold leadership of the deep-well" together with the equally "legitimate claims of the transhumant and refugee user group to participate in concordance with their share of the watering taxes"[1].

In the meeting, the *sous-préfet* took the opportunity to lament, that elections had not been held to the board of committee for 10 years and that "posts were now held by elements with no relation to the former elected board i.e. refugee and transhumant herders". He also regretted the effects of the internal fighting between the local factions of the ruling party, PS (Partie Socialiste). Finally he complained of the fact that no proper accounts existed for the spendings and earnings of the well-committee and that only one tax-collector, the representative of the 'refugee' population, kept any sort of accounts of the watering fees collected.

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[1] As the share of the FuutankoBe herders officially was estimated to 80% of the total revenues these two claims were not easily harmonised .

Seeking a compromise, the *sous-préfet* appointed a new board whose members represented a broad mixture of the two opposing local political tendencies and of the 'settled' and 'transhumant' population: The leader of the protesters was appointed president while the son of the former president was designated as his deputy. The post of treasurer was given to a sedentary while a refugee was appointed vice-treasurer. Finally the tax-collectors were chosen in such a way as to ensure full representation of all ethnic groups and sub-groups of the area[2].

It is of interest to the case to mention that the leader of the protesters was also the local representative of tendency B of the ruling Socialist Party, while the old president represented tendency A[3] of the same party. Noteworthy is also that Naoré is one of the boreholes in the Ferlo around which the largest contingent of herders originating from the Senegal River Valley (the Fuuta) have settled in the aftermaths of the drought. These have been joined by a large number of very rich herders originating from Mauritania who have arrived either in connection with the droughts of 1972/73 and 1983/84 or in relation to the Senegal-Mauritanian conflict of 1989. According to population survey carried out in 1994, the population of 'newcomers' amounts to around 70% of those households using the well on a regular basis.

So when the sous-prefet selected the official village chiefs as representatives of the population, he actually favoured only a small faction of the actual users of the deep-well, whereas the majority of the users including the ones providing the heaviest financial contributions were represented by only 2 persons who, even more importantly, were grouped under the categories of "strangers" or "newcomers" and not as part of the regular user group.

The solution proposed by the sous-prefet was therefore perceived by the FuutankoBe as a way of excluding them, the interest of the sedentaries in controling the well-committee being the large sums of money collected every month[4].

Far from the peaceful solution anticipated by the sous-prefet, the result of this meeting was a total uproar among the 'foreign' population and the mobilization of all available resources. First of all a parallel committee was established (identical with the old one). As all large taxpayers

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[2] Wolof, Black Maures (Haratins), UrurBe, FafaBe, FerlankoBe, DiawBe etc

[3] The system of political tendencies is described by Schmitz (1993) as a binary system, referring to the opposition between the leading faction (A) and it's inevitable opponent, tendency B. This characteristic feature of Senegalse politics will be treated more thoroughly below.

[4] Estimated by the FuutankoBe to be around 265.000 CFA of which the sedentary herders contribute only 15.000 CFA Francs

withheld their watering taxes from the official committee and instead contributed to the parallel committee, the official committee soon went broke unable as they were to deliver the services expected. Provision of water was therefore soon taken over by the " rich" parallel committee, leaving the "new" committee with no real functions. (It was in the course of this operation which was 'guarded' by youngsters armed with machetes, that the police forces of Matam were forced to intervene).

Secondly, a letter of protest, signed by 95 users of the well, was sent to the sous-préfect of Ogo. The protest was threefold,
a). A protest against the under-representation of the majority of the population who financed the bulk of the running costs of the well.
b). An accusation of embezzlement by the new well-committee as well as
c). a protest over the measures taken by the new well-committee to raise the watering fees. Such measures taken by a minority board, it was stressed, would not be tolerated by the majority population.

To give further weight to the claims, important funds were raised among FuutankoBe herders, not only from Naoré but also from the neighbouring villages. This was used to finance the equipment and dispatchment of delegations who could visit various influential persons on the Senegalese political scene in Dakar as for example the leading *marabouts* (saints) of the muslim Tijanya brotherhood.

The effectiveness of these measures could soon be observed. Shortly after the dissolution of the old well-committee, a letter from the Minister of Waterworks referring to the case of Naoré appeared on the desk of the Governor of Matam. Stating that a majority of the population of Naoré considered the newly elected committee as illegitimate, as not all members of the user group had been present at the founding meeting and the non-sedentarised population were excluded from the election of a new board, the Minister pressed for a solution to be found as quickly as possible.

Evidently, this letter was the result of contacts taken by the FuutankoBe herders, to *marabouts* from the influential Tall family to whom most of the herders from the Fuuta claim spiritual allegiance and to the influential director of the Dakar cattle market. Through these channels contacts were established to Djibo Ka, at that time Minister of Interior and a Fulani from the region. He in turn had contacted the Minister for Waterworks.

The Governor, kicking the hot potato further down in the system, ordered the Prefect of Matam to solve the problem, a task he assigned back to the sous-prefect of Ogo, i.e. to the same person who had originally been compelled to intervene in the conflict.

A meeting was held with the participation of the sous-prefet of Ogo, the UNHCR representative, the commander of the police forces of Matam, the departmental chiefs of Waterworks and of the Livestock services, the local veterinary assistants, the President of the rural council and the village chiefs. At this occasion the FuutankoBe herders complained that the "genuine" herders were not represented in the new board. They were not, they declared "ready to hand over their money to people just waiting for an opportunity to embezzle it".

In spite of the massive representation of the Senegalese administrative system, the meeting was, characterized by its lack of clear decisions. The only decision taken was a passive approval of the *de facto* dissolution of the committee installed by the sous-prefet. An intention to form a provisional committee consisting of representatives of technical services was never carried out, neither were the proposed new elections to the board. The immediate effect of the meeting was therefore primarily that *status quo* was restored.

But in spite of its apparent inertia, the incident is significant on a number of levels:

First of all, it illustrates how the influx of herders from the Fuuta region has altered the social relations between newcomers and sedentaries.Obviously, the growing amount of animals and the herd management strategies practiced by the newcomers represent a number of obstacles to the local and more sedentarised Fulani agro-pastoralists. But the Naoré case shows that it is less questions of access to the grazing resources, than efforts to gain control over key institutions such as the well-committee and, not the least, the financial resources it accumulates, that are at the heart of struggles.

Secondly, the case points to some of the problems related to the handing over of responsibilities over the deep-wells from the state to the local communities which took place in 1984. Contrary to the assumptions of the Common Property view, the transfer of responsibility of this vital function has resulted in poor management, frequent breakdown of the pumps and generalized misappropriation of collected funds[5]. Popular participation based on equitable representation as envisioned by for example Runge, is not a sticking feature at any of the boreholes visited[6].

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[5]According to a rough estimation made in 1989 (Juul et al) taxes should largely suffice to pay for the running costs of the borehole if fees were collected for all animals using the watering facilities. Explanation for the constant deficit characterizing the vast majority of boreholes, must be found in the (clientelistic) exemption of a large part of the herd from taxing, and in misappropriation of collected funds. This results in serious obstacles for the individual herder in terms of frequent stand stills of the pump as no funds are available to purchase diesel oil.

[6] The democratic elements of the clientelistic and patrimonial structures characterizing most management institutions will be discussed further on.

This situation is, among other things, the result of an ambiguous, fragmentary and contradictory legal framework which together with a limited (or hardly existing) control on the part of the state agencies, more or less invites to mismanagement and embezzlement. To this adds that the well-committees serve several functions at a time. They are not, as perceived by the NRM framework, institutions concerned exclusively with the management of boreholes and pumps. Rather than single-purpose institutions, these institutions play an important role in the political and social life of the village as control over watering facilities in these dry areas has turned out to be the most important means to control access to the grazing lands. With this in mind it is no wonder that the well committees are turning into prime arenas for local political struggles.

Thirdly, the Naoré case exposes part of the vast potential of resources and strategies that newcomers and locals respectively are able to mobilize in order to control access to water and grazing lands. For in spite of the ostensible remoteness of Naoré, herders are both well-informed and have strong networks that enables them quickly to acceed to the central political stage of Dakar and, no less important, to get their message through.

In this context it is interesting to note, how the sedentarized herders have shown themselves adept in taking on the mode of discourse of the administration. In their appeal to the local administration of the Matam department they advocated for the legitimacy of their claims through a discourse of decentralization, stressing the distinction between the settled population[7] and 'the foreigners'. From their side, the FuutankoBe herders, of whom a large part have been present in the area for almost 20 years stressed their rights as the "genuine" herders and as (the largest) taxpayers - a tactic which made the sous-prefet conceive of their protestations as an attempt to install "*la loi du plus fort*" i.e. to turn the principle of one man one vote into representation according to ownership in animals[8]. Furthermore the 'newcomers' relate to the parallel discourse of the free grazing rights granted to any Senegalese according to the Rural Code (La Loi sur le Domaine National). It is this legitimation, together with the mobilization of influential patrons, which has enabled the 'foreigners' to mobilize the support of the Minister of Interior, against the immediate interests of his own kin.

Fourth, it illuminates the ways in which conflicts tend to become politicised as local strives to gain control over resources are mixed with struggles for larger political goals. This could be seen by grapples between the competing factions of the ruling party (the struggle of tendency A

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[7] This is justified by the sousprefet because the first-comer population (presumably) have been paying for the borehole for more than 30 years.

[8] The Sous-prefet is apparently unaware that the 'foreign' population comprise approximately 70 % of the regular users of the borehole.

vs. tendency B[9]). This perspective might add another dimension to the understanding of Djibo Ka's surprising intervention. For maybe it was not only the rights of the FuutankoBe herders that was at stake, but also the maintenance of political support from the leader of Tendency A in Naoré, the president of the outgoing well-committee[10].

The partial non-application of the legal framework and the ambiguous role of the state furthermore illustrates how decisions taken at the decentralized level at any time may be overruled by decisions taken further up in the system. This ambiguity is further elucidated by the absence of clear decision making and the relatively peaceful return to status quo. This issue will be discussed in further detail below.

Finally is shows how access in spite of state ownership to both water resources and grazing remains subject to political manoeuvering. The case clearly illuminates how part of the struggles over access and control are fought as struggles over meanings attributed to crucial terms such as the definitions of "strangers" and "locals".

The issues presented above all represent crucial aspects in tenure disputes in agro-pastoral Senegal. In the following section I will therefore try to elaborate more on a number of these questions.

Fluidity, flexibility, ambiguity and negotiability:
Aspects of property relations to grazing land in the Ferlo.

As mentionned above, Common Property theorists such as Ostrom and Bromley argue that "problems in rural managerial capacities stem from unclear institutional arrangements and from the absence of an authority system to give meanings to such rights" (Bromley and Cernea 1989:55) According to them, problems arise from free and unregulated access resulting from

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[9] Although much has been written on factionalism as a dominant feature of Senegalese politics, little has been written about the competition between poliitcal tendencies at the local level (exceptions are Blundo, 1995b; Jacob and Blundo, 1997; Schmitz, 1993 and Cruise O'Brien, 1975). My impression is that the labels A and B refer only to their status as respectively majority or minority faction. Hence tendency A in various localities may be mutually opposed. It is, however, important to note that each faction have representatives at all levels of the party hierarchy, making it very difficult to seperate local politics from politics at the central level. (Schmitz, 1988:600). Nonetheless, given the fluidity of factional affiliation within PS, adherence to one tendency or the other does not provide a clear (or static) affiliation at the central level (See also Cruise O'Brien, 1975:174-177).

[10] Unfortunately this obvious connection did not occur to me during fieldwork, reason for which I did have not the opportunity to check these relationships with local connoisseurs of PS party politics.

the perpetual undermining of local systems of authority and regulation by obtrusive state policies. Efforts to improve local management systems should therefore be directed at establishing more firm property rights to the group, including the rights to exclude others from use and decision making (ibid.: 15).

This diagnosis indisputably fits many of the problems revealed by the Naoré case, at least at a first sight. Obviously the local population struggle with the absence of clear rules and are constrained by the limited means they dispose of to regulate access to the well and the adjacent pastures. The question is however whether improved management may be reduced to a question of reviving traditional and, it is claimed, hitherto efficient management institutions. Will increasing the authority and means to sanction local rights of exclusivity as proposed by the Common Poperty framework alone do the job?. For how extensive were in fact capacities of the 'traditional' institutions involved in managing local natural resources in the Ferlo? To what extent is it possible to distinguish a clear user group and discern a distinct resource territory to defend against the intruding "foreigners"? And can struggles over access to resources in the Ferlo be reduced to a question of improving the legal framework and establishing a firm set of rules, as proposed by Ostrom, North and Bromley?

As mentioned above, traditional institutions or customary rights are seldom as unchanged or original as they appear. Rather redefinition of custom and invention of tradition are part of the local power struggles and are as such crucial aspects in the transformation of social and cultural systems. As could be seen in the Naoré case, redefinition of customs has been one of the means used by the local, mainly Ferlanke, population to legitimize exclusion of the Fuutanke population from the well committee. By suggesting a strong dichotomy between 'locals' and 'strangers' the Ferlanke population has managed to establish a 'discourse' linking up to a central assumption in the discussion of local-level resource management: that resource degradation originates in the dissolution of customary common property arrangements whose very purpose was to give rise to resource use patterns that were sustainable (Bromley and Cernea 1989).

Rather than establishing the basis for understanding ongoing struggles concerning access to and control over local resources, it seems that the focus on state intervention as the prime agent for the undermining local authority structures further contributes to the creation of 'blind spots' with regards to the intricate power struggles at play at the local level. In the next section a number of the myths relating to 'traditional' resource management in the Ferlo region will be examined.These are:

a) the myth of the strong customary tenure arrangements
b) the myth of the distinct user community
c)the myth of the stable resource environment
d) the myth of the obtrusive state.

a) Customary regulation of access to pastures.

In conformity with mainstream views on environmental degradation, range degradation in the Ferlo is often attributed to the absence of rights of exclusivity. This, it is held, hampers any attempt by local management institutions to control the access of free riders and hinders motivation to limit the number of animals grazing on the range.

As elsewhere, discussions in Senegal over herders' responsibilities for the destruction of their environment in Senegal have taken form of a juxtaposition betwen the transformation and the preservations views (see chapter 3). Many projects and official development policies take their point of departure in the narratives of the Tragedy of the Commons and the Cattle Complex blaming destruction on the contradictions between individual interest and social obligation and the irrationality of the traditional extensive herding systems[11]. In contrast to this, a number of scholars and projects have defended the preservation stance and have argued for the existence of customary rules and traditional authority structures in charge of regulating access to the water and grazing resources of the Ferlo region. It seems however that in the attempt to confirm herders as rational and conscious managers of their territory another narrative is created that contributes to oversee the subtleties in local decision making and to exaggerate the extent/reach of existing regulations.

With regards to the rights over lands, it is difficult to trace any customary regulation of access to the grazing lands in the Ferlo. Indeed, the empirical foundation used to validate the assumption of regulation appears problematic. For when looking closer at the works of those scholars professing the existence of strong resource regulating institutions, it turns out that all of them refer to the work of Barral from 1982 (See Touré et al., 1986:17-19 and Touré 1990:4, Diawara, 1984:72 and Malick Faye in UNSO/UNDP 1993:17 and Richter, 1991). In this study Barral shows how use of the pastoral space in the Ferlo was regulated through respect of the *hurum* (from arab *haram*: interdiction). This interdiction was divided between *hurum ngesse*, "interdictions of the fields", which prohibited animals to graze in the vicinities of the fields during the cultivation season and *hurum durungol*, "interdiction of the pastures", alluding to the spatial entity grazed by the individual herd within which other herders should avoid camping.

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[11] See for example the documents of "Projet d'Appui a l'Elevage" (PAPEL) for example Algor Thiam 1995, and SODESP (1995). Also Grenier 1960:38-40 decribes what he calls 'la boomanie des peuls', the desire to have a large personal herd, which inclines the herders to live seperated from one another and incessantly to be on the move according the the seasons. Grenier underscores that this is a passion with no religious attributes. Rather the "cow is regarded as a member of the family". The herder makes use of his livestock, he does not exploit it. In his work from 1987 however Grenier states that the new lifestyles of the boreholes imply that herders are commercialising a larger part of their herd than before.

Barral stresses, that rather than a customary pastoral code, the system of *hurum ngesse* was a regulation to defend the cultivated fields while *hurum durungol* was a way of maintaining herd segregation. Nonetheless, the notion of *hurum durungol* has been picked up by several authors who have used Barrals findings as an indication of the existence of territorial units over which the encampment exercised control. Such bounded territorial units, it is argued, have tended to be disolved with the emergence of the boreholes and replaced by the prevailing situation of *de facto* open access. For being state owned, these boreholes confered free and unlimited access to anyone, thereby undermining traditional means to limit the number of users to the adjacent pastures[12].

Little evidence seems to support this somewhat biased reading of Barral and its construction of a regularized past governed by rigid customary restrictions to pastures. Although the empirical sources to the pre-borehole tenure systems, as mentionned in the introduction, are quite limited, they do not (to my knowledge) make reference to direct rights of exclusivity on specific parts of the range. The existence of clear territorial rights is indeed questionable. For even if the different subclans (as shown in the maps over transhumance movements made by Bonnet Dupeyron in 1951 see map 6) tended to direct their transhumance routes to roughly the same areas every year, settlement of camps was more a function of opportunistic calculations over water and pasture availability than regular movements to a fixed and bounded territory.

This non-existence of rights over pastures among the Fulani of the Ferlo was confirmed unambiguously both in the survey carried out by Grenier in 1957 and in my own interviews from the period between 1988 and 1995. According to Grenier, pastures are the property of everyone (Grenier 1957 quoted from Pouillon[13] 1990:190). In my own interviews, surprisingly few herders recollected to have ever heard of the notions of *hurum*. In contrast, the freedom to settle wherever one chooses turned out (as can be read out of the stories of Yerim and Bathil in chapter 4) to be a prominent feature in herders own self-knowledge.

With regards to the present state of tenure rights, interviews carried out between 1988 and 1995 wholly confirmed the lack of property rights at present and the rights of any herder to camp and exploit pastures where and whenever he wants without asking anyone for permission to settle

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[12] For examples elsewhere in the Sahel see notably Thebaud, 1988:68 (Niger), and Benoit, 1984 (Burkina Faso).

[13] See also Grenier, 1960:57. Unfortunately I have not been able to get hold of the 1957 document by Grenier. In the later works of Grenier (1960 and 1987), the statements regarding free and open acces are not so clearly expressed.

(see the story of Yerim Sow). This is also what can be read out of the many unsuccesful attempts to regulate the distance of transhumant settlements vis à vis the borehole, discussed briefly in chapter 4.

This moderation of the presumed importance of regulation generally confers with the views of for example Jeremy Swift (1988) or Lawry (see chapter 3) who underline that in areas where resource availability is characterized by spatial heterogeneity and temporal variability, independent and opportunistic decision making appears to be the most efficient response to a heterogeneous environment. Such resource management systems are more likely to be characterized by flexible arrangements, which allows transhumant herders to gain access to the crucial resources, water and pastures, over a vast area.

Regulation of access to pastures through the control over water?

But if pastures were unregulated, what about acccess to water? As water primarily is a means to get access to the prosperities made up by the pastures, it has been common to regard water sources such as wells as the key customary resource management institutions of the clans (see Thébaud, 1988:51). Many scholars have therefore blamed the drilling of state owned boreholes, where access was open to anyone, for undermining hitherto well-functionning resource management institutions, bounded as they were in the ability to restrict the number of users of private wells.

But as was the case of the pastures it turns out to be difficult to trace any customary regulation of access to water in the case of the Ferlo. Nothing seems to indicate that either the natural ponds or the shallow wells dug into the dry river bed of the Ferlo Valley were subject to restrictions of access before the boreholes were drilled. In fact, both islamic law (Bonte, 1993:58) and Fulanis concepts of proper 'conduite' repudiate private appropriation of water sources, even in those case where they are dug by an individual or a group.

Hence, when the colonial administration in the late 1950's started setting up a network of publicly owned deep-wells throughout the Ferlo, they did not break up any primordial customary organization. Quite on the contrary, it was the boreholes and the new opportunities that they created, in terms of year-round settlement, which started off new, but initially rather vague, claims of territorial ownership to the areas around the well. Such tendencies of tribal appropriation were observed as early as 1956 by the French anthropologist Marguerite Dupire[14].

[14] Marguerite Dupire was appointed by the colonial administration to study how the boreholes affected Fulani lifestyle, as part of Gromaires team.

According to her, a certain 'nationalism' was developing around the wells as rivaling sub-clans would request to have their own deep-well because: "*the government has given a well to the UrurBe, but they have done nothing for [us] the BarkanaBe*" (Dupire, 1957:23).

At present all water resources officially belong to the state and are considered an integral part of the public domain. According to the Water Code[15] "such resources are a collective asset and their use on the national territory is subject to prior authorization and supervision". Indeed, user permits are issued by the Minister of Water Resources and Land Reclamation (Ministre de l'Hydraulique et de l'Assainissement) their purpose being " to reconcile the interests of various categories of users, to taking into account previously established rights and customs and finally, to conserve national water assets" (Ministère de l'Hydraulique et de l'Assainissement, from Allisoutin, 1996:3). Needless to say, very few of the users, at least in the rural areas, have ever heard of the existence of legal provisions requiring them to to obtain permit to use water resources. As noted by Allisoutin, ponds do not in the mind of the rural population belong to anyone and anybody may make use of them (ibid.:4).

With regards to the ordinary wells, which for a large part are state financed, access is not restricted. Nonetheless, more informal types of regulation may be enforced. According to my informants, foreign herders may, for example, be asked to refrain from watering their livestock until the animals of the regular users have drunk. At this moment the water level has sunk and water is more difficult to access.

Similar rules apply for privately owned wells, bearing in mind that according to the legislation access to and use of publicly owned ground water is open to anyone.The fact of being man-made (i.e. privately sponsored) does, however, attach rights of a more private character to the well. Hence, also the shallow wells dug into the dry river beds have certain rights attached to them, obliging a possible lender to provide a gift for the owner, while the annual enforcement and maintenance is left in the charge of the user. But as shown in the quotation below the actual extent of these rights remain somewhat blurred:

> *"A great number of transhumants have settled here. We don't know where they come from. They haven't talked with us. They water their animals at the well and at the hand-dug shallow wells [céanes]. They don't even ask for permission to use the well, in spite of it being the villagers themselves who*

[15] Law 81.13 of March 1981, Journal Officiel de la République du Sénégal no. 4829 of April 1981 pp.411-418, (here quoted from Allisoutin, 1996:3)

have dug it and paid all expenses. With regards to the shallow wells everyone is free to dig one, where it is possible. But if you make use of one which has been dug before, you ought to get the permission of the one who initially dug it. If you dig one yourself, you are free to prohibit others from using it. (Village chief, Sessoum, Velingara Febr. 1993.)

But as can be traced in the quotation, presumed rights and enacted realities are not always congruent, but rather the source of constant strives and redefinition. This is part of the constant realignment of power relations: In the interpretation given by the village chief, it is the local population who are holders of certain (unspecified) rights over the well, rights which are tresspassed by the foreigners in their impolite behavior *(they haven't talked to us, they haven't asked for permission)*. The response of the villagers, in this representation, is one of tolerance and indulgence towards the aggressor. Tolerance and indulgence have positive connotations. They are features often accentuated by herders and centrally placed in the Fulani code of conduct. To be tolerant is no sign of weakness, rather it is the position of the strong one, who has force to respect the codes of proper conduct and be generous (see Riesmann, 1990).

As argued above, access to land is free and unrestricted. This does not, however, imply that settlement is is completely random or chaotic. For while the individual herder is free to use whatever pastures he wants, settlement into new areas will take place with due regard to a series of informal conventions on proper conducts. According to Niamir (1990:32) this 'choreography of movements' or 'passive coordination' derives from a mutual wish to avoid mixing of herds which could be the consequence of settling too close to other herders. Likewise, a desire to avoid confrontations usually inspire transhumants to refrain from settlement in zones already occupied by large numbers of herders. The following quotation may illustrate this mentality

"If more wells are drilled it would destroy the bush. It's good for the animals to be able to move the whole day without meeting other herds. At present I'm taking advantage of the breakdown of the borehole-pump. Once the pump is repaired and herders come back, I will move another 10 km's away. (Herder from Mbiddi, on transhumance near Loumbi Aly Thedy febr. 1993).

In contrast to the interpretation stressing the existence of a customary regulation of access to pastures, the view expressed above underscores the individual interest in avoiding too close contact with other herders. It is the right of the indivual to move away from others and to have unrestricted access to a large number of different resource regimes and not the rights of a restricted group of users to exclude others which is at stake. The relatively low priority given to creation of rights of exclusivity to a distinct resource regime also explains why the majority of

herders are extremely favorable to the drilling of more wells (in contrast to the herder quoted above). For although creation of new wells increases competition (the concern expressed by the Mbiddi herder), it still opens up new resource spaces for grazing. As will be shown below claims of exclusivity therefore often turns out to be as much a question of gaining and securing political control as of limiting the pressure on the grazing lands.

The system of 'passive coordination' which in principle gives everyone equal rights of access, does not exclude that herders generally recognize the needs of being on friendly terms with their neighbours. In many cases, settlement into a new area will therefore involve some sort of compensation to the neighbours in the area of settlement. Thsi may be done either through manure contracts (shorter or longer periods), through temporary employment of members of the host household to draw water or through other types of relations which may constitute an advantage to the host population. Although no formalized practices exist, and herders generally are reluctant to mention such transactions, transhumant herders may in certain occasions also give away animals as gift to neighbours, village chiefs and local authorities in order to ensure good relations.

Ultimate dichotomies? Sedentary vs. mobile/indigenous vs. foreigner.

If flexibility and lack of clear regulation with regards to the productive resources as described above, turns out to be, not the result of undermining of well-functionning customary institutions, but rather the corollary of a society characterized by a broad and flexible resource base, then the distinct user group with shared interest in a long term maintenance of a sustainable resource environment may also turn out to be difficult to identify.

As argued in the previous chapters, the productive strategies of the Ferlo population are not homogeneous and may vary considerably over time. In the Ferlo, as elsewhere in the Sahel, most producers turn out to combine a large variety of very different economic activities such as collection of gum arabic and other forest products, commercialisation of livestock or salaried work in order to pursue a living. Such activities are not necessarily linked to either agricultural or livestock production. In recent years a growing number of the herders have, for example, established themselves as shopkeepers in the borehole villages.

Often these productive activities are not either very closely linked to a specific and bounded geografical setting. In fact extensive travelling, as part of a productive strategy, is not practiced only by transhumants herders. Also apparently 'sedentarised' inhabitants of the Ferlo frequently turn out to make use of resources in other, even fairly distant, resource regimes. Some continue to cultivate seasonally in the *waalo*, other travel extensively during the dry season offering

treatments on basis of their magical powers (*maraboutage*[16]), still others supplement their incomes by travelling to town or abroad as migrant workers on shorter or longer terms[17].

It is important to stress that such supplementary income-generating activities are not carried out solely by the ressource-poor rural dwellers. Also large herd owners may turn out to supplement their incomes as travelling *marabouts*, livestock traders or the like. This variation in productive strategies underscores the need to substantiate claims made by the preservationists of rural producers as having common goals and interests. Obviously, those herders who are active in commercialisation of livestock or are involved in retail trading may be only moderately interested in setting up firm rules to reduce the number of foreign herders settling in the area.

Consequently, sedentarity and mobility can neither be considered as fixed entities nor as the two opposed poles in the evalutionary proces. Such dichotomies do not hold in the case of Senegal, where producers constantly shift between different types of production and between various degrees of sedentarity and mobility, according to their immidiate constraints and abilities in constant adjustment to where it is most profitable for the moment.

> *Those who left in 1973, used to be agro-pastoralist. Some had 300 sheep and maybe 100 heads of cattle. But many lost many animals during the trip as the animals had to get used to the new system. Some managed to reconstitute their herds after that. Others lost everything and had to come back and cultivate. Among those who failed in the first run some managed to build-up a flock after some time. And among these, some have now left to go on transhumance in the*

[16] Notably SanraBe herders are considered to possess magical powers, reason for which this group travel more extensivelly than others, being away form their household for many months during the lean season. Also the success of certain herd-owners who have been able to build up a particularly large herd is currently attributed to special magical powers. Several times during visits to particularly rich herd owners people have come to seek their mystic services. Such mystical powers play an important role in the self-knowledge regarding herding skills. According to the richest herder in the area, the reason why he managed to get his, indeed extremely, large herd across the Senegal River form Mauritania in the midst of the fierce hostilities between Mauritania and Senegal in 1989, was that he was able to make them invisible. Invisibility was also used to explain the relative success of those herders who where able to cross the river to 'raid back' part of the Fulani herds during the hostilities.

[17] A survey carried out for the CSE (Juul, 1990) in 1988/89 showed that 17 % of a sample of 93 households were involved in gum collection, 20% in commercialisation of livestock (but at a very variable scale) while 4% were involved in retail sale. In the course of the years retail trading has merely exploded and villages as Barkedji have at least 20 different shops. Often the shops function as a meeting place for different groups of a more or less clientelistic stamp and as a meeting point for trading smallstock etc.

south. Others, however, can't make it. (Ardo[18] Ururbe DjougonaBe, Madina Ndiatabe (*waalo*) 1995).

As illustrated in the quotation, the post-drought migration process is in itself an indicator of how rural dwellers may shift between preferred resources as a reaction to internal and external changes, adopting a more or less mobile lifestyle accordingly. And clearly, such patterns of resource use are likely to give way to more flexible resource management arrangements, than those adduced by the Common Property approach.

Indeed, the whole history of post-borehole settlement affirms the picture of African communities as porous and fluid social entities. Hence, they are comprised of individuals who have shown themselves apt to respond to new opportunities and constraints in a fluctuating physical and social environment, as discussed in chapter 3. This adaptability is reflected as the histories of the different agglomerations in the Ferlo which are characterized by constant shifts in relation to changing population. Indeed they resemble the Zambian situation, recollected by Berry, according to which " *the village is not a permanent social entity, but rather an institution through which a large and varied company of people pass at different speed*" (Kay, 1967 quoted from Berry, 1993:162).

Accordingly, the distinction between the rightful user and the foreigners against whom the resources should be protected, becomes less obvious than it would appear at first sight. Distinguished as it is by fluid ethnic boundaries, high levels of mobility and little permanent attachment to a particular geographical space, the Ferlo fits well into what Kopytoff characterised as a 'frontier region' (see chapter 3). In conformity with the 'frontier ideology' described, a continuing reorganisation of ethnic identities is taking place, making the distinctions between who is currently labelled 'foreigner' or 'newcomer' and who falls under the heading of 'first-comers', 'local' or 'indigenous' less clear-cut than orginally anticipated. In the case of the Ferlo, a closer look into the 'age' of settlement of various groups around a borehole shows, that while many of the so-called 'foreigners' have stayed in the area for more than 25 years and have invested considerable sums in the maintenance of the boreholes and other crucial equipment in the area, many of those labelled 'firstcomers' turn out to have been settled in the area only a few years before or maybe even after the arrival of the first FuutankoBes. This was for example the case of a group of FafaBe's in Velingara who were considered as first-comers, although they had only moved in by the late 1960's[19]. In those cases the labels of 'local' and

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[18] *Ardo* is the title of the subclan leader, and equivalates the status of the village chief.

[19] This was revealed during the mapping exercise in Velingara in 1991 (see chapter 4).

'foreigner' tended to be more related to differences in herd management, to productive strategy and to political affiliation than to the actual age of settlement. In the same vein the constituion of the FuutankoBe herders as a distinct group is a recent phenomenon, in vigour only as a product of post-drought migration situation.

The recent tendency among a number of those FuutankoBe herders who had stayed a long time in the Southern Ferlo of discretely backing attempts aiming at excluding their newly arrived kin may also reflect such 'identitary volatility'. With this in mind, it turns out to be largely impossible to distinguish a group through some common objective as was proposed by North, Ostrom and others. For as identities are changed new groups are composed, underscoring the need to explain change historically and not just from what can be seen here and now..

Finally, it is questionnable whether post-drought migration can be perceived solely as a one-way proces of newcomers invading a previously stable and static resource space. As is shown in the case of the Loumbi UrurBe sub-village (south of Barkedji), the influx of FuutankoBe settlers in some cases contributed to increase the productive potentials of a certain area, thereby making it more attractive to the so-called local population. In this case the labels of 'newcomers' and 'locals' are turned more or less up-side down.

> *We all come from Namarel [in northern Ferlo]. We came in 1973. When we settled there was no one here, only jackals, hyenas and even lions. We camped in one single, but very large camp. This was to protect our herds against the wild animals. But after a while the predators left [to find a more undisturbed environement]. And then the SanraBe agro-pastoralists started moving in. They started cultivating and that's when the trouble of crop damages started. We spend fortunes paying compensations for crop damages now. Some have even chosen to move away into the gazetted forest where there is no cultivation. The SanraBe's who have moved in, are people with very little live-stock. They are attracted by the improved conditions for cultivation, now the predators are gone. At present there are 5 camps of SanraBe cultivators. But we fear that more will come."* (FuutankoBe herder from the subvillage of Lombi UrurBe, Barkedji).

The case of Loumbi UrurBe illustrates, how difficult it is to speak of the borehole and the adjacent pastures as a distinct resource management space. Most resource users operate across several resource management spaces or make use of different resource spaces in the course of their productive 'career'. Consequently, also the distinction between the rightfull 'owner' of the resources and the deleterious 'foreigner' or 'free-rider' (in the terminology of the Common

Property framework) will turn out to be more politically than objectively defined labels, aiming at justifying the rights of certain groups at the detriment of others.

When the Ferlanke population of Naoré suggest a strong dichotomy between themselves: 'the local, sedentarised population´and the others: the 'vagrant' foreigners (or even 'refugees' from another country), it is yet an example of how identities are redefined and traditions reinvented. For as shown above restriction of access of so-called foreigners to the pastures or to key resource institutions is not tied to some mutually recognized primordial or ancestral right legitimizing a differentiation in status. Rather, it is a political manoeuvre, a way of establishing a 'discourse' linking up to the policy framework of decentralisation and self-governance. Framing the conflict as a problem of local vs. stranger groups may therefore be perceived as a tactical move by certain layers of the local population through which they have managed to legitimize the intervention of the *sous-préfet* aiming to defend their postulated rights of exclusivity. On their side the newcomers may, as is the case in Loumbi UrurBe, claim equal rights as first-comers by stressing their own role as 'domesticators' of an otherwise uninhabitable area.

Evidently such 'politisations' or struggles over meanings do not preclude that the arrival of the large and highly expansionist group of FuutakoBe households carried with it many problems in terms of increased competition and partial marginalisation of those occupying the area prior to the FuutankoBe invasion. But to get a proper understanding of the unfolding of conflicts, as the one in Naoré, it remains critical to recognize that the call for exclusivity was not shared by the entire (local) population. Other interests than the pure defense of the local resouce base may be just as important elements on the local political agenda.Therefore the meanings attributed to notions such as 'strangers' and 'locals' and the definition of who is a legitimate user and who an outsider often turn out to be highly political issues crucial for present and future alignment of political powers. This political dimension is however largely neglected in the Common Property approach. This omission of the political dimension is, as will be shown below, even more apparent in the analysis of the relations between local institutions and the state.

The local institutional landscape and the myth of the obtrusive state.

The negative effects of excessive state interference and the unclear institutional arrangements hold considerable weight in the arguments for (re)instauring common property resource management arrangements. According to conventional analysis of local institutional capacities it is the overcentralization of institutional arrangements which constitute the prime obstacle for local participation and self-government. Through stifling of local initiatives, excessive state tutelage is considered a major obstacle to development of viable institutions of local resource management (Guellar, 1990:130). Such arguments are, as will be shown below, pervasive, but nonetheless incomplete.

There can be no doubt of the overly centralized character of the Senegalese state apparatus. As noted by Rondinelli and Minis (1990:451) much of the authority system to take action, on both major issues and seemingly routine personnel actions, is centralized in the Presidency[20]. To this adds, that governement structures are highly compartmentalized, composed by many ministries, agencies, commisions and institutions that operate with little co-ordination and co-operation. Finally a hierarchic system of controls, inherited from French tradition of public administration, hinders the ability of ministries and agencies to take action. All of this contributes to create a situation where it may be very difficult to carry out government functions and make decisions unless the highest executive officer takes a personal interest in expedient action. (This could be observed very clearly in the case of Naoré).

With the administrative reform of 1972, a proces of decentralisation was launched. It comprised both deconcentration of power from central governement to local administrative offices and handing over of specific responsibilities to locally elected bodies, namely the rural councils and the well-comittees. Administratively the country is now divided into regions, departments and arrondissements, headed by governors, *préfets* and *sous-préfets* respectively. At the lower administrative levels, the rural communities, state administration is handed over to a locally elected body, the rural council, formally endowed with legal status and financial autonomy.

For the present dissertation, the administrative levels of primary interest are those of the arrondissement and of the rural community (communauté rurale). At arrondissement level, the state administration is physically represented by a sous-prefet, a secretary and a *brigade de gendarmerie*, all of whom act on the behalf of the Ministry of Interior (Vengroff and Johnston, 1987: 274). To this adds the CER (Centres d'Expansion Rural) a multi-disciplinary team of extension officers[21] in charge of providing technical expertise for the implementation of rural community development efforts (Vengroff and Johnston, 1985:4).

At the level of the Communauté Rural, the representation of civil servants is often restricted to a single extension officer, eventually in company of a representative of the police forces. At

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[20] In fact, the President of the Republic, is responsible not only for political guidance and direction but also for a myriad of administrative details such as the approval, appointment, promotions, retirement etc of all administrative personnel down to the level of the department director. The president can also ammend and discard any regulation or procedure, reason for which many conflicts over or recommendations for change can be resolved only by actions in the Office of the Presidency (Rondinelli et al. 1990:451)

[21] In the pastoral areas the CER is comprised of extension agents in charge of agriculture, livestock and forestry. The" chef de CER" has an administrative background and is tied to the Ministry of the Interior.

village level the state is represented by one or several village chiefs[22]. The village chief is in charge of resolving minor local conflicts, of collecting taxes and of assisting the government technical officers in their activities. Nonetheless he holds no formal authority and has no means to sanction tresspassing of local or national rules or regulations.

Localisation of local authorities:

(persons in brackets may be, but are not neccesarily, represented) .

Chief town of the Arrondisse-ment	Sousprefet CER/Extension officers Police Force	Arrondissement Council/ councillors	Well-committee	Village Chiefs
Chief town of the Commu-nauté Rurale	(Extension officers) Police Officer	President of the Rural Council/ Councillors	Well-committee	Village Chiefs
Borehole village		(Councillor)	Well-committee	Village chiefs
Village/sector		(Councillor)		Village chief

In spite of the considerable efforts to deconcentrate state agencies, implementation is far from complete. As stressed by Rondielli and Minis (1990:455) decision-making responsibility remains highly centralized and field offices lack the resources to carry out their functions effectively. Strong vertical lines of authority prevail among the field-staff of technical ministries at the local level. This counteracts their official intention of providing technical support through the CER. Technical agents often prefer to follow the directives of their own ministries (in charge of salary and future career advancement) instead of respecting the priorities and directives of the local councils. This obviously limits the ability of the CER chiefs technically in charge of the horisontal coordination of activities, to exercise real authority over the agents. This situation is further hampered by a general condition of poor equipment, insufficient staffing and financial constraints which effectively limits the frequence of trips to the field.

[22] Within a larger village, for example a borehole-village, there may be several village chiefs as each of them represent their own 'sector' (ethnic group or subclan)

Close collaboration between the administrative and technical officers and the local government is also frustrated by the policy of the central governement of keeping administrators responsive to central policies. In order to make it more difficult to develop schemes to abuse their powers, subordinate administrative officers are always posted outside their home districts and ethnic groups. This, together with the rapid circulation of administrative personnel, makes it liable that anytime the administrator gets to understand a corner of what is at stake in local politics, he is transfered to another jurisdiction. (Thomson, 1991:6).

The Rural Councils.

Also the devolution of power from the state to the locally elected and participative structures, the rural councils, is hampered by the pervasiveness of state centralisation and control.

According to the design of the Administrative Reform of 1972, the most important local institution in charge of management of local resources is the rural council. It was, however, not until 1984[23] that these locally elected bodies had been established in every municipality (Communauté Rurale[24]) of the Senegalese territory.

Rural Councils are elected by universal suffrage[25] on 5 year terms. According to the original text (Loi 64-46 du 17 juin 1962 relative au Domaine National) all adults actually residing in the area

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[23] In those parts of the Ferlo region comprised within Departement of Diourbel (Louga) the councils were set up in the course of 1970's. In those parts of the Ferlo comprised by Region du Fleuve, the councils were established in 1980 and in 1982 in Senegal Oriental. (As the last area Dakar elected their first municipal council in 1984 (Vengroff and Johnston, 1987:276)).

[24] A Communauté Rurale consists of a number of villages within an "Arrondissement" i.e. 20 to 80 villages and a total of 5000 to 10.000 inhabitants. (Le Roy, 1980:562)

[25] The number of elected members varies according to the population density of the rural community. In the Ferlo, 16 members are elected through direct voting. Originally 2/3 of the members were elected by universal suffrage while one-third are appointed by the local cooperatives. Since 1996, all members have been elected.

and occupied with 'rural activities' may be elected into the council[26]. In reality members are almost exclusively selected among the local sedentarised elites and mobilized through the factions of the ruling Socialist Party.

The Rural Councils are intended to act as a sort of interphase between the territorial administrative hierarchy and the rural users. In principle, they enjoy considerable authority over local resources: being responsible, first and foremost, for the allocation of use rights to land and resources as well as for land use planning i.e. the ability to reserve certain areas of the municipal land for specific purposes. To this adds the powers to regulate local markets, cattle walks and residential zoning patterns and of financing local community projects through the rural councils budgets.

In spite of the broad powers attributed to the rural councils with the reform, a number of constraints exist which limit the effective control of the councils over local resource use. First of all, the state maintains considerable powers over the rural council. For being an agent of the state, the president of the rural council comes directly under the authority of the *sous-préfet*[27]. Until the 1990 revision of the law, the sous-prefet could suspend any decision taken by the president if it was considered untimely, illegal or not in conformity to the spirit of the rural council debate to which it applies (Ministère de l'Interieur, 1984:14 here quoted from Vengroff et al., 1984:12). This also applied for the resolution of local conflicts which formally lay in the hands of the rural council. Here, the autonomy of decision is hampered by a clause according to which solutions are to be presented to the *sous-préfet* before application (Le Roy ,1980: 563). Since 1990 a majority of the prerogatives regarding local resource management were transfered to the rural council leaving the *sous-préfet* a clearer role as the controling party (Blundo, 1995b:14).

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[26] Art. 10 :" [Le conseil rural] peut comprendre [..] des membres élus parmi et par des personnes domicilés dans le terroir , y résident effectivement s'y livrant à des activités rurales a titre principal et jouissant des droits electoraux"

[27] The text concerning the degree of state supervision of the councils has been subject to frequent revisions. Initially land attribution was a prerogative of the president of the rural council upon consultation with the other councilors. This was modified in 1980, where the *sous-prefet* was given the authority of final approbation. In 1986 further centralization was made as a decree transferred this approbation to the *Préfet.* Finally in 1990, the autonomy of the rural council was reinforced, as the control over local budgets and tax collection was transferred from the *sous-prefet* to the President of the rural council.

Furthermore vast tracts of land in the areas in question are gazetted (as pastoral, forest or game reserves) and therefore remain under the direct authority of the state through the Forestry Services[28]. And finally, the councils dispose of few financial and logistical means to control the implementation of their decisions notwithstanding the implementation of local development projects as proposed by the law. According to the intentions of the Reform, the activities of the rural councils are to be financed primarily through a rural tax which is managed and budgeted by the rural communities themselves. The rural council, however, has no control over the rate of taxation which is fixed by the state. According to planners this 'investment budget' was to be the motor of the community budget as local leaders were intended to commit the greatest share of the budget to economic investments such as tube-wells and larger boreholes, livestock vaccination pens, markets, irrigation schemes etc. promoting the development of the rural community (Vengroff and Johnston, 1987:276). These intentions have, however, had little impact on reality. Budgets are very limited and in most cases no development projects are actually carried out[29]. In the pastoral area, the large of logistical and financial support is particularly problematic as each council is in charge of vast areas[30] over which the councilors are spread.

So although the rural councils are designated to play a central role in local resource management, few means are provided for regulating and securing pastoral land from agricultural encroachment. As will be shown below, the legal framework is both contradictory and ambiguous, making it very difficult for the councillors to carry out any efficient land use planning.

A main problem is the agricultural bias of the legal framework. According to the Land Law of 1964 (Loi 64-46 du 17 juin 1964 relative au Domaine National) land is intransferable. Plots may

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[28] This is particularly relevant for the Eastern part of the field area which is located entirely within the Reserve de Faune du Ferlo Nord covering 332.000 ha and the Reserve de Faune du Ferlo Sud covering 663.700 ha. Source: Grenier, 1987 p 156-157.

[29] According to Vengroff and Johnston in 1983-84 total annual budgets ranged between 1 -17 million CFA i.e. 2700-42.000 US$. The budget of the Communauté Rurale of Saldé amounted 22 million CFA in 1991 of which 1 million were given as subsidies to the running costs of boreholes in the area, 2 million were used to repair wells and boreholes, while 3,7 millon were used for the drilling of a well.

[30] The communauté rurale of Barkedji comprises 2072 sq.km, whereas the Communauté Rurale of Ogo, the country's largest is approximately 18.000 sq. km.

be allocated individually only in the form of leasehold to producers who will ensure its productive use either by physical or financial investment in the land, the principle of *mise en valeur* (land development). As long as the peasant uses the land productively and hence respects the *mise en valeur* he will not be deprived of his means of production (Decret 86-445). For herders, however, this situation is quite problematic. Due to the extensive character of the Sahelian grazing systems, grazing as such is not considered a productive investment in the land, and can therefore not serve as a justification for obtaining private leaseholds. So even if the right of access is left almost untouched by the law, herders have few means to protect their grazing lands once claims have been made by agriculturalists.

In the course of the years, attempts have been made to improve tenure security on grazing lands. According to a decree from the Ministry of Agriculture from 1980 it is prohibited to clear land for agricultural purposes within the boundaries of natural pastures. According to the decree 72-1288, land which is designated as grazing lands may be used by any citizen (*réssortissant du terroir"*. Here, one finds an attempt to bind the local resources to the local settled population. But as shown by Le Roy (1980:560) implementation of the regulation is seriously hampered by the fact that the concept of "terroir" remains undefined.

In the same way, the decree stipulates that it is the responsibility of the cultivator to fence and protect his fields from straying animals. But again, the legal value of these decrees is severely restricted, as none of the pastoral zones, except for the gazetted areas, can boast of clearly demarcated boundaries. The legality of a cleared field will therefore remain subject to negotiations and interpretations.

One the whole, restriction on the room of manoeuvre of cultivators in search of new lands to clear is limited to singular regulations such as the prohibition to cultivate within a limit of 1 km from a pond and on cattle treks. But even such regulations may be difficult to put into effect due to the limited capacity of the institutions in charge of their control.

Finally, the central concept of *mise en valeur* is difficult for the councillors to handle: a fact which is reflected in the minutes from council meetings by recurrent reference to almost all applicants as 'great workers'. Especially estimations of the capacities of modern farming units such as the Mouride *daaras* becomes pure guesswork. Indeed the lack of examples of 'desaffectation" (fields taken away from leaseholders because of non-cultivation) and the enormous areas attributed to single families is telling for the difficulties (or lack of motivation)

related to the evaluation of the productive capacities of the individual household[31]. The effect of such 'incapacities'is likely to be that priorities other than the plain productive capacities are decisive for how much and to whom land is attributed.

This is well illustrated by the sweeping practices of the Mourides of making claims of several hundred square kms of land often located within the limits of the gazetted forests, and the many cases where farmers, including the mourides have started cultivating much larger tracts of land that originally attributed.[32] But it is also embodied in the new 'counter-strategy'put into effect by the big herd owners of Velingara in 1990 and 1991 who started soliciting large parcels of lands as private grazing grounds. This attribution of parcels covering 10, 15 or 20 km^2 of pastures (mainly to council members) aimed primarily at creating a buffer against the expansionist practices of the Mourides. As herders seldom posess agricultural tools or manpower to cultivate more than a single hectare or two, the practice was clearly not in conformity with the law. Nonetheless it was approved, at least passively, by the *sous-préfet* and the *préfet*[33], thereby providing yet an example of the partial non-application of the law.

In spite of these obvious deficiencies, it remains questionnable whether the apparently meagre results of the decentralization proces can be attributed solely to the insufficient devolution of real power from central government or to the deficiencies and contradictions of the legal framework, as assumed by Rondinelli and Minis, Guellar and Thomson. For while it is true, as shown above, that decentralization remains imperfect and the fundamentally centralistic structure of the senegalese state apparatus in many ways serves to undermine the autority and efficiency of the locally elected bodies, it remains doubtfull whether clear structures of authority or the establishment of a lucid and unequivocal legal framework is likely in itself to improve local management significantly. Looking into the actual practices of the decentralized institutions in charge of local resource management a number of equally important issues are revealed, more related to the local practicing of politics.

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[31] See also Le Roy 1980:565, Caverivière 1991:22 and Juul 1991c.

[32]Such 'overflowing' of field limits may even, is it said, entail movement of the boundary stones set up by the extension officers and councillors in charge of field delimitations.

[33] For a more thorough discussion of these practices see Juul, 1993.

Contrary to the somewhat amputated version of local resource management accorded to the rural councils, the well comittees enjoy considerable autonomy both financially and legally. Indeed the measures taken by the state in 1984 to hand over the responsibilities for operation and maintenance of boreholes and pumps to locally elected well committees have in many ways therefore proven far more significant with regard to pastoral land use than the creation of the rural councils. Before passing on to the general discussion of decentralisation and the extents of state powers in the Senegalese countryside, these committees and their abilities in terms of efficient local management will therefore be presented and discussed.

The well committees.

In contrast to the restricted powers of the rural council, the handing over of responsibility for the boreholes to locally elected committees is largely in line with the recommendations of the afore mentioned Common Property school. Although the state remains the formal owner of both water resources[34] and of the technical equipment, the well-committee enjoys extensive autonomy receiving almost no organisational support from the state.

The different degrees of autonomy result primarily from differences in the objectives of decentralisation. Obviously the driving force behind the establishment of the well-committees in 1984 was an attempt by the state to reduce public expenditure as part of the structural adjustment programme, an intent declared overtly in the legal framework of the transfer[35]. Although public parlance highlights the participatory elements of the transfer of responsibility, herders have tended to regard it mainly as a transfer of costs of operation and maintenance. Contrary to the implicit assumption, that transfer of power is always wellcomed by the local population, herders feel that maintenance should remain the responsibility of the state, an opinion which helps to explain the widespread reluctance to pay for even minor repairs. This

[34] According to the Water Code Water resources are an integral part of the public domain. Such resources are a collective asset and their use of the national territory is subject to prior authorization and supervision. (Article 2 Law 81.13 of March 1981 Journal Officiel de la Republique du Senegal no. 4829 Here quoted from Allisoutin, 1997:3).

[35] Circulaire Interministerielle du 9 janvier 1984 visant a la création et a la généralisation de comites de gestion de forages en milieu rural, and Circulaire Interministerielle du 9 janvier 1984, Annexe 5 sur les Comites de Gestion des Forages.

results in surprisingly frequent cases where the vital source of water is blocked for months despite considerable inconveniences for the users[36].

The (rudimentary) legal framework affecting the well committees is interesting on several counts. First of all, it is stated that the committee is a public non-profit making organization, organized in accordance with the President of the Rural Council of the locality. Secondly, the recommended 12 members of the well-committee are elected by the local population for a period of 2 years. With regards to membership, this is open for any user paying correctly their watering fees. Thirdly, the objectives are restricted to ensure supplies of diesel and lubricants as well as proper maintenance of the pump and engine.

Nothing in the law confirms that 'indigenous' occupants of a certain area, should have preferential rights with regards to representation in the boards of the well-comittee, as it is often argued by 'local' residents and even by the personel of the Ministry[37].

In spite, however, of the requirements of the text, none of the well-committees visisted during my fieldtrips could boast of having held any elections, since the initial election of 1984. In many cases, single members had been replaced with others of the Presidents choice, as in Naoré. In other cases the boards had been dissolved numerous times by the sous-préfet or the President of the Rural Council, who had used the opportunity to appoint a new committee, in some cases made up by adolescents or people without much cattle[38] acting more or less as stooges for more influential people.

> *The present well commitee has been in office 4 months. I don't know what happened to the old one, but the President of the Rural Council called upon one of his relatives and asked him to become President of a new well*

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[36] According to the *Services de l'Hydraulique*'s regional office in Linguere 4 of the boreholes of the *département* have been paralyzed for more than 2 years, due to breakdown of the motor.

[37] It is a firm belief among the technicians of the regional office of the Ministry of Waterworks (Service de l'Hydraulique) that only those paying their (poll) taxes in the area can be appointed members of the board. *(those who pay their taxes down there can de part of the board, those who are outside cannot. The transhumants are outside')* This view is also the one forwarded by the local 'first-comer' population.

[38] Members of the board are officially compensated by a 10% refund of the fees collected.

committee. It's very difficult to find anyone who is ready to volonteer for the job.We have all been appointed by the President of the Rural Council. Except for two representatives of the Wolof population , we are all his relatives. We are all young people" (Member of the well-committeee, Barkedji febr. 1993.)

Alternatively, the composition of the board is a matter of eternal strive between various rival sub-clans and factions present around the borehole as in the case of Gueye Kadar, where standstill of the well has been a repeating feature ever since the handing over of resposibility due to internal competition between *IrlaaBe*, *UrurBe* and *DialluBe* Fulani subclans. .

Often these conflicts go on for many years. For contrary to the situation of exessive state tutelage of the Rural Councils, the well-committees cannot rely on much institutional support or organisational backing from the state services.[39] The Ministry of Waterworks formally in charge of the wells, restrict their services to technical maintenance. Organisational support is , as can be seen in the text, restricted to the surveillance of the President of the rural council.[40] The sous-prefet is often quite reluctant to intervene in the frequent and uncompromising strives between different factions of the population over the wells. In several instances the situation has however become so chaotic that the *sous-préfet* has taken to dissolving the existing borehole committees replacing them with committees composed by the available extension officers (This was also the proposition made by the *sous-préfet* in the case of Naoré). But in 1989 this praxis of 're-engagement' of the state was explicitly condemned in a note from the government (Circulaire de Jean Collin 30 juni 1989) enjoyning the *sous-préfet*s to leave the management of the boreholes to the local population.

The composition and functionning of the board is also a matter of serious divide between those with only few animals and those with many:

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[39] The Services de l'Hydraulique do not intervene in organisational matters (questions de sensibilisation). In the original conception of the handing over a special unit for 'sensibilisation' or awareness- raising, was intented. Due to budgetary limits it was never implemented.

[40] Also the Chef de CER laments the lack of clear rules and control: *"There is nobody to make revisions of the budgets and accounts of the well-commitee: There are lots of financial problems, but no one is in charge of taking care of that problem. It up to the sous-prefet currently in office whether he will designate someone to supervise the accounts"*. Chef de CER, Barkedji febr. 1993.

To become a member of the well-commitee you must live in the village and have a few heads ofg livestock. No, I don't know whether that written down anywhere. If the boreholes were handed over to those with many heads of livestock, there would be no more problems. At present it's the poor, who are in charge. They need the money they can earn and what surplus they might embezzle for the survival of their families. In Ranérou, they get 20 % of the turn-over [against normally 10%] Veterinary assitent, Ranérou).

But on the other hand, the large herd owners, first-comers and newcomers alike, have until recently tended to give the well-committe little attention, claiming that they are herders and have other more important thing to do than to hang around at the well.

The high level of embezzlement is condemned vigourously by all parties. Nonetheless is remains characteristic for the vast majority of boreholes legitimated as it is by a general dislike among herders to count their animals, leaving taxes to be evaluated as a rough estimate of the size of the herd[41]. Lack of transparency in accounts further facilitates informal agreements in favor of influential indigenous herders who by way of clientelistic relations and informal negotiations have managed to keep their contributions to a minimum[42]. Many wells are now financed almost exclusively by taxes applied to FuutankoBe herds -a practice which seriously questions the non-profit character of the well-commitees.

In spite of the profits made, cases are frequent where the pump is shut down several days or weeks because of lack of fuel and lubricants, of spare-parts or of other repair. Such perpetual embezzlement of funds evidently generates a climate of general mistrust. As noted by the regional livestock officer in Linguère:

"There are many problems with the boreholes. Even if the transhumants weren't there, there would be problems. There are simply too many animals at

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[41] Such estimations were not made easier by the fact that a considerable part of the herd was watered at the encampment with the tubes.

[42] According to Grenier (1987:138) the fees payed in 1987 had been unchanged for 10 years, hence corresponding to notoriously false herd size estimations.

the wells. At Warhock [a borehole with little or no FuutakoBe representation], *they have arrived to a situation where they pay for watering on a daily basis.*

With regards to the process of decentralization, it is impoartnat to stress that the borehole committees were not intended to play any significant role. The boreholes remain under state ownership guaranteeing everyone who will pay the fees agreed a right to use the facilities. With regard to regulation of access to the watering facilities notwithstanding the adjacent grazing lands, they do not officially hold any authority. Nonetheless, the well-committees have found themselves to be holders of no less than the key institution to control management of local resources, the ability to limit access to pastures through regulation of the number of users of the well. This, unintended consequence of state withdrawal, becomes all the more paradoxical when one recalls that in contrast to the rural councils who are under tutelage of the Bureau in Charge of the Decentralization located in the Ministry of Internal Affairs, boreholes and well-committees remain seperated from the decentralisation process, under the supervision of the Ministry of Waterworks.

The importance of the role of the well comittees has become apparent particularly in relation to post-drought migration. Obviously the growing number of "foreign" herders transhuming in the area, especially in years of rain deficit, increases competition on the pastoral resources, just as it wears the pump machinery which in most cases is old and fragile[43]. Hence, excessive use in order to satisfy the large number of animals contributes to frequent breakdowns which force otherwise sedentary agro-pastoralists to move over to the neighboring well for longer or shorter periods of time. In order to limit pressure on the borehole pump and not the least the pressure on the adjacent pastures, some first-comers holding office in the well-committees have used the tool, out of direct reach of the Rural Council, of limiting the number of users of the well. This may be done either by direct exclusion (which is illegal according to the law) or through the exorbitant taxing of herds belonging to the migrant population.

But although emergence of more exclusive practices would appear to be a natural consequence of increased competition on resources, this trend is accompanied by its apparent opposition - a similarly strong inclination towards inclusive practices, generated primarily by economic concerns. For with the arrival of the FuutankoBe herders, the turnovers of the well-committees

[43] The level of suspicion is so that certain herders even suspect the wells committees of letting the pumps function 24 hours a day in the deliberate intention of making them break down, so that transhumants will leave.

have increased dramatically, and have turned into important means for extraction of economic revenue. The result of these contradictory interests has been that the policy of most well-committees has been a constant oscillation between exclusive and inclusive strategies with regard to foreigners' access to water; between the desire to limit competition on pastures through restrictions on the number of users and the temptation to increase revenues of the well-committee by expanding the number of "foreigners" to finance the bulk of running costs of the deep-well (the advantage of the last strategy being that it is likely to create a surplus apt for embezzlement).

Contrary to the improved management anticipated by the Common Property framework, the handing-over of boreholes to locally elected bodies has resulted in generally poor management of the wells. Breakdowns of the equipment of the wells are frequent, and local herders generally reluctant to pay for something which they regard essentially as a state responsibility.

It is, however, important to notice that in spite of the newly aquired ability of borehole members to regulate the number of herders grazing in the adjacent pastures, conflicts center increasingly on problems related to the financial management of the borehole, rather than on management of the pastures. For apart from turning into a key institution in resource management, the deep-wells have also proven to be important means for extraction of economic resources in a region otherwise largely deprived of other objects or resource flows prone for misappropriation.

In the controversy between protection of local resources and the economic advantages related to increased mobility, many well-committees are incited to a constant oscillation between inclusive (and financially attractive) strategies and exclusive practices where the access to wells is used as a means to limit 'free-riding' by 'foreign' herds. And contrary that what was envisioned by Runge, the chosen policy turn out to be motivated more by short-term economic (and political) gain than by longterm ecological concerns.

Excessive state centralisation or politisation of institutions?

The process of decentralization in Senegal comprises both a devolution of power from the central government to the local administration (decontration) and a handing over of specific responsibilities from the state to more or less autonomous and locally elected bodies; namely the rural councils and the well committees. Where the rural councils and the local administration are

closely knit together in a web of obligations and control, the well committees enjoy, for better or for worse, a high degree of autonomy.

As illustrated by the case of Naoré, the direct effect of this handing over of control over the natural resources was not necessarily more efficient management. Rather the effect was in the first place that new arenas of struggle were being created with regards both to structures of authority and to the rights of access *per se*. For as stated by Goheen (1992:403): ."as access to land and authority over natural resources are being redefined by the state through the process of decentralization, contradictions, paradoxes and unintended consequences increase, and struggles over meaning and power intensifies".

With regards to problems related to decentralisation, one could, as Sheldon Guellar, choose to perceive of the role of the state administrators as the prime obstacle for self governance, the rural councils as being deprived of their capacities for local initiative by flagrant state tutelage (Guellar, 1995:140). According to this interpretation, the well-committees would stand out as the example of genuine local associations characterized by institutional independence and financial autonomy.

Seen in the light of the conflicts of for example Naoré, it is reasonable to ask whether the unfolding of local initiative is in fact hindered by state interventions and whether the remedy likely to bring about the administrative efficiency advertised for is transfer of increased responsibilities to the local population. Is it at all possible to analyze the interrelation between the rural population and the state solely from the point of view of administrative efficiency, - as a relation between simple order and an obedient rural dweller?

As discussed in chapter 3, rules do not automatically determine peoples behavior. Many situations may force people to countervene rules, just as they may chose to do so in order to fullfill some political or economic objective. Whetheror not local initiatives are stiffled remains an open question. Indeed, it seems more reasonable to analyze the 'management' of both well-commitees and rural councils as a both creative and, and at least to some extent, functionnal adaptation of local institutions to the new management requirements. Such adaptation may take place in many unintended ways, as could be seen with the powerful key role suddenly attributed to the apparently insignificant well-committee.

In the same vein, the considerable formal power attributed to the agents of the territorial administration as compared to that of the popular institutions, does not necessarily reflect the 'real' relations of power between these two parties. As could be observed in the checkmate situation of the sous-prefet in the Naoré case, formal authority does not necessarily go hand in hand with actual control. In many cases the area of state control turns out to be surprisingly limited.

Hence, a first problem when evaluating the extent of state control at local level relates to state representation. In areas as sparsely populated as the Ferlo region, each *communauté rurale* covers a vast area. Herders' relations to the state administration may therfore be very distant, a situation which is further aggravated by a permanent lack of vehicles, fuel etc. The rural council tends to be far better represented in the *chef lieu de l'arrondissement*, the central village, where also the *sous-préfects* office and the *gendarmerie* are located, than in the small villages scattered over a vast territory.

Due, among other things, to the extensive distances, the lack of information about the actual situation in the more remote areas and a generalized practice of informal arrangements, few of the conflicts played out in the field follow the official routines and formalised structures of decision making. In fact, many of the decisions concerning land attribution which formally are under the authority of the rural council, are taken locally without consent or approval of those formally elected. Both my own data material and the literature on tenure problems in Senegal abounds with examples of how land is attributed by the president of the rural council and 'officialized through his stamp on a typed petition' without any control or measurement[44] by the CER or *sous-préfet* or even consent from the other members of the Conseil Rural. (see Blundo, 1995b:13; Le Roy, 1980; Mathieu, 1996 and Juul, 1991c). In other cases land is distributed by the village chief or simply taken by the user without any form of formal approval.

In short, the situation surrounding land attributions in large parts of Senegal may at best be characterized as imperfect. Attributing the responsability for this chaotic situation solely on the excessive state interventions, therefore seems unjustified.

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[44] The prospections (missions de prospection) prescribed by the law before any attribution of land is carried out, are highly infrequent (communication of the President de Conseil Rural of Barkedji 1993, see also Blundo, 1995b:13). Only a small part of the plots attributed are registered in the books (cahiers de déliberation) of the rural council (see Juul ,1991c). And in those cases where registration is carried out the actual size of the plot only in few cases corresponds to the extent registered, while its geographical location in most cases is omitted.

In reality the control and influence of the state is severely restricted by the ambiguous position of the sous-prefet and the CER vis-à-vis the local population. For contrary to the vision of the Common Property progagators of the state administration giving orders to an obedient population, it turns out that the local population to a wide extent evades, obstructs or transforms the orders of the authorities as part of a defensive strategy (Spittler, 1979:30). As shown by Spittler, such defensive strategies may take many forms ranging from hiding or direct movement of villages into the bush to escape tax collection, labour demands or other forms of bureaucratic pressure, to ignoring or deformation of the commands and probihitions of the state. Also simulation of agreement is a means by which herders or farmers hope to bargain with the minimum of annoyance and bring the subject to an end as quickly as possible (ibid.:32).

As experienced several times during fieldwork, the effect of such strategies of defensive communication is obviously a low level of information on the part of the administration at local as well as at the central level. According to Spittler (ibid:35) this lack of knowledge may be partly compensated for by force. For contrary to other forms of influence which implies some consideration of the situation as a whole, this is less a requirement with threat of force. This makes it easier to handle for the administrative authority. Alternatively, the administration may chose to give up the areas in which it is hardest to achieve success. The reaction of the state therefore becomes a paradoxical mixture of laissez-faire and force, a situation which also characterised the role of the state administrators in the case of Naoré.

While the analysis proposed by Spittler of the interrelation between peasants and the state fit well with the situation of the Ferlo, his focus on the defensive aspects of the peasants' reactions tends to overlook the political power struggles going on between different groups of herders and peasants and the role of the administration herein. For where according to Spittler peasants attempt as much as possible to avoid situations which could bring them into contact with the holders of office in the government, herders in for example Naoré played a very active part in influencing or discrediting the agents of the administration as part of the struggle for political power[45].

[45] Where Spittler here seemingly approaches Hydens 'uncaptured peasant' in his focusing on peasant's autonomy from the state I prefer the view expressed by Berry (1993: 62) according to which people in general seek to activate ties to the state when gains can be made from it, and escape when state resources dwindle or political opponents gain the upper hand.

Furthermore the Naoré case shows, how the *sous-préfet* acts within a highly politicized local environment where the administration is under strict control by the (ruling) Socialist Party[46]. Any *faux pas,* stemming from insufficient understanding of the intricacies of local politics, is likely to cost the local administrative officer his career or at least put a halt on any aspiration of moving closer to civilization and away from the dust storms and the heat of the Ferlo by way of a promotion. This situation is well recognized by the representatives of the local administration and was obviously a source of great frustration to the *sous-préfet* of Ogo in the Naoré case.

As a result, the *sous-prefét* and his officers, who are paralyzed by the joint pressure from the Ministry, the political party structure and not the least the local politicians, tend as long as possible to adopt a *laissez-faire* attitude and to limit interventions and hence active responsibility to a minimum.

According to Spittler (1979:35), such circumstances forces the *sous-préfet,* who is under the obligation of reporting regularly and extensively to his hierarchic superiors to resort to the creation of a fictive reality in his monthly reports. This tendency by the local administrators of trying to keep out local disorder is labelled *institutional autism* by Geshiere (1984:22, see also Spittler, 1984:36[47] and Blundo, 1995b) and stems from a mixture of deficient knowledge of the realities of the vast area under his command, and out of fear of presenting local conflicts to the higher levels of an administrative hierarchy who will conceive of such local disorders primarily as disturbances, issue of the insufficient capabilities of the administrative officer.

Institutional autism and attempts to avoid getting to know about local conflicts may be traced in the many cases of local dispute where the pragmatic intervention of the local *sous-prèfet* or

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[46] The state administration is to a considerable degree interwoven with the structures of the ruling Socialist Parties. The large majority of administrative cadres are party members, just as all councillors, at least until the latest elections were members of the ruling party.

[47] Spittler (1984:37) refers to the disastrous situation of 1930-31 created by the colonial administrators in Niger when the district commissioners in spite of severe famine continuously reported of high input pr. hectare and an adequate provision for the population. Hence the blame for a bad harvest was attributed to the natives and their laziness. As the famine was finally recognized in 1932, the bureaucratic machinery was able "with its usual seeming precision to evaluate the victims to 26,167 dead and 29,311 emigrated to Nigeria".

chef de CER has been to urge the local population of "*trouver un arrangement*"[48]. In this way, the administrators signals that even diversions of the law will be tolerated if only the administration is not concerned and peace reinstalled. In the same vein the frequent cases of 'minimalistic' or overtly deficient minutes from council meetings engaged in conflict resolution reflect such generalized reluctance towards 'officializing decisions' by hem writing down, and hence run the risk of giving cause for precedence[49]. Finally it can be traced in the often surprisingly low level of information on the part of the administration for example regarding the amplitude and implications of post-drought migration. Obviously such lack of interest also goes hand in hand with a tendency among administrators and extension officers of misregarding the mobile population. Having been educated in a system which regards nomadic herders as a residual category and an obstacle for any 'real' development of the rural areas, these administrators tend to favor the local, and settled population with which it is easier to establish stable relations and who fit better into the general picture of an "*administré*".

As a result of the above, a highly fluid situation prevails with regards to the arbitration of local conflicts, a situation in which, as we will see, decisions are frequently contested and renegotiated. As in the example of Naoré, local decisions are often overruled while decisions taken by the state very often are open ended. This leaving open space for renegotiations while the local administration is left in a sort of power vacuum. For the individual administrator this is often asource of frustrations leading to attempts to 'professionalise' the tasks asigned to the locally elected bodies:

> *"We ought to make a committee in charge of installing the newcomers. It should be formed by the extension officers in charge of agriculture and livestock production. The well comittee is not able to evaluate the carrying capacity of the pastures. Therefore they would install people in a completely arbitrary manner. It should be a task for the local administration. (..) It's not*

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[48] "Find a mutual arrangement" An example of such state 'disengagement' is given by Niasse(in Mathieu, 1996:67-68). But also the example of the administrations passive accept of pastoralist councillors attribution of large tracts of grazing lands to themselves (Velingara in 1990) is an example of such deliberate overlooking of tresspassings of the law.

[49] It was intereting to note, that in the case of Naoré the decison of making a large meating with representation from all the parties involved, including the tecnical services, the UNHCR representative etc. was criticised by some of the attendants for being an *un-african* form of problem-solving.The idea was that with so many witnesses present possibilities for individual negotiations were hampered just as the solution which was written down in the minutes could make room for precedence.

the Rural Council which is in charge of pastures. They can make cattle tracks etc. but that's it. In each arrondissement the sousprefet is the representative of all the minitries, so he is in charge of coordinating the activities at local level".
(Chef de CER, Barkedji, febr. 1993).

But such attempts to defend the 'adminstrative territorium' do not receive backing from above[50]. Decisions taken by the government tend to be vague and characterized by partial application of laws and decree, as in the example of Naoré.

This situation is, of course ,further aggravated by the ambiguities and overlaps of the different legal texts juxtaposing the free and open access determined in the Law on the National Domain and the decentralization proces according to which some authority of exclusivity is granted to the local resource management institutions. But also in relation to the presumed need for a clear and unequivocal framework, the position of the Common Property School is questionable. For according to Mathieu and Hesseling (1986:309-325), this partial non-application of rules is neither accidental nor an example of the impotence of the state apparatus. Rather the gap between on the one side rules and principles and, on the other side, its effects in reality, must be seen as a sort of 'functional ambiguity' - a situation of fluidity in which and through which arrangements can be made on the marge of legality in its strict sense. In this way a non-expressed consensus can be obtained between state and the different parties at local level, which is crucial for the proces of transformation.

Inherent in this proces is of course a constant strive for adjustment and accommodation where the different social actors seek to manoeuvre themselves into those positions which are most beneficial to his or her objectives and take most advantage of the opportunities offered by the moment. Here the dispute related to who is to be considered a 'regular' user eligible to the board of the committee is of course central.

Seen in this perspective is becomes clear that penetration of state structures into the countryside is far more restricted than anticipated by the critics of the obtrusive state. Farmers and herders often choose to ignore or countervene state policies which do not fit into their particular interests, while bureaucrats to a wide extent limit their sphere of intervention into those areas

[50] See also the fate of the attempted re-engagement of the local state administrators into the well-committees above, which was dismissed by the goverment.

where they do not get into conflicts with the ruling elites. The relation between state bureaucrats and the representatives of the local population can therefore not be described just as a one-way power relation between the 'administrator' and the '*administré*', Rather it is characterized by a constant struggle for power and authority between different parties each disposing of different political means. Although critics are right when they claim that the decentralisation proces in Senegal, particularly until 1990, was stiffled by the excessive controlling powers attributed to the *sous-préfe*t and the ministries of tutelage, the critique tends to underestimate both the political abilities of the local rural elites and the complexity of the task assigned to the administative authority. Squeezed as they are between claims and diverging interests of the *marabouts*, the rural councils and the political party, the sphere of influence of the *sous-préfet* and his officers will often turn out to be extremely restricted.

As a result cases are many where strategies of peacekeeping and accomodation has dominated state intervention rather than attempts of keeping strictly to the letter of the law. Blundo even speaks of the process of '*socialisation de l'administration de tutelle*', refering to the ways in which any newly appointed sousprefet will tend to cling to the political faction or tendency in majority and otherwise keep a minimum level of governmentality, in order to avoid administrative trouble (Blundo, 1995b:14). Hence, contrary to what is anticipated, there is not necessarily any conflict between the locally elected representatives and the administrative personnel.

Excessive state intervention is therefore seldom a proper diagnosis to the limited efficiency of local resource management institutions and transfer of power to local institutions no panacea to improve local management practices. As highlighted by the quotation below, rules do not neccesarily determine peoples behavior, just as many different institutions may compete for the control over the same resources.

> "*It's difficult to talk of rules in relation to the Rural Council, for among Fulani's, people do not follow what is written down. Formally it's the Rural council who should decide everything in relation to the management of the territory here. But that's not possible because of Fulani solidarity [Pulaaku]. People should make a request before settling in the area. But people just settle where they feel like. The Rural Council isn't informed of anything. People only negotiate with the Borehole Committee*".(Agro-pastoralist, former president of the Rural Council, Thiargny, February 1993.)

5.2. Political and social realignment in a post-drought context.

But how does the question of decentralisation, and the politicisation of the natural resouce management institutions relate to the issue of post-drought migration?

In the introduction to the dissertation, the importance of getting the political diemsion back into the study of natural resource management' was emphasized together with the need for uncovering the often unexpected and innovative ways in which drought victims have adapted to and taken advantage of the post-drought situation. As revealed in the cases and events recounted above 'getting politics back in' turns out to be an essential requirement if one is to explain the successfull and dynamic adaptation of the FuutankoBe herders. For, as will be argued below, the success of the FuutankoBe herders also has to do with their ability to manouevre adeptly within the existing power relations and to take advantage of the current political opportunities. Here the decentralisation policy is but one of several occasions.

The second part of this chapter is an attempt to disentangle this process of adjusting the political and social institutions to a new emerging order. Here the political dimensions of the inception of the FuutankoBe herders and the impact on the post-drought migration movement on the institutions controlling water and pastures will be discussed.

In areas as the Ferlo, where most resources formally are state-owned but governed as open access, normative codes play a crucial role in the regulation of accces to resources. When socio-economic conditions change in this case as a result of improved herd management contradictions in the existing order, between for example individualized and communal property claims may be become more apparent. New attempts to safeguard local resources and enforce exclusive rights are also likely to emerge. Where the open pursuit of material gain and political power is acquiring new legitimacy a moral pretext may be needed for rendering legitimate claims and social practices that have hitherto been considered socially unacceptable. In these situations, specific events such as droughts may, as mentionned above, play a vital role in providing such justifications. For under the guise of caring for the well-being of the local community a process of innovation of the normative codes regulating access to crucial resources such as water and pastures is set in motion.

As mentioned in the introduction to this chapter, opportunities for such social and political adjustment have been provided through the shorter and more localised droughts which have occurred on several occasions during the 1990s, notably the drought of 1990-1993. For the old sedentarised elites these events have provided the opportunity for re-inforcing their position in relation to local power relations and for positioning themselves more favourably in the competition over local resources. For the emerging elites of rich newcomer pastoralists they provided an opening for driving a wedge into the existing institutions involved in local resource management

and in getting part in the control over key institutions in local resource management.

Increased mobility and exclusive management practices

The new attempts to restrict access to local resources and enforce exclusive rights became particularly pronounced between 1991 and 1993 when failing rains in the Northern Ferlo during two successive years propelled a new wave of migration from the Senegal River Valley southward to the less affected areas south of the Linguère-Matam axis. Already in the beginning of the rainy season of 1991 when it became clear that rains would be deficient, the most livestock-rich herders from the Senegal River Valley started moving southward to join their kin in the southern Ferlo. The movement of these animals took place at a steady pace, giving the animals the opportunity to graze and recover at the various boreholes or wells traversed.

At certain wells this resulted in a tripling of the number of animals presumed to share the meagre pastures available. Obviously, this created anxiety among the local population who foresaw that they would be forced to migrate themselves, once the large foreign herds had stripped the area of fodder. Transhumance for these, in some cases relatively poor agro-pastoralists, implies numerous constraints, as it is demanding in terms of labour and logistics just as it is likely to hamper the accomplishment other supplementary income-generating activities. In an attempt to reserve the meagre resources for themselves, new and hitherto untried methods were therefore put into service to limit access to the pastures. As can be read out of the statements below, this resulted in a rising level of conflict throughout the Ferlo:

In the entire Ferlo people are doing things to limit the access of foreigners. As far north as Tessekre, the well committees have closed the borehole a few days to avoid that herders from the waalo settle. It's mainly to avoid illnesses. But in some areas people have even taken to burning their own pastures to avoid the arrival of foreigners. (FuutankoBe herder on transhumance near Loumbi Aly Thedy febr. 1993)

The local population will do anything to get rid of the foreign herds. In some cases they do not fill up the reservoirs properly, so the animals are hindered from drinking properly. In other cases they force you to continue your voyage after having made you pay a fortune for a single watering. At the boreholes of Linde and Thiel they closed off the pump for a whole week, and told people that it was broken, just to get the foreigners to move away. Many herders from the north are beginning to be afraid of moving south after these latest experiences." (Transhumant herder, Thiargny febr. 1993)

"The transhumant herds have completely finished the pastures here, and we'll all be forced to leave. I have stayed put around the borehole of Djagueli for the last many years, moving only between my dry season and my wet season camp. But with all the newcomers, my animals cannot

any longer find pastures on the day where they go for watering. Herders here wanted the well committee to limit the number of newcomers, but they want to earn money. Personally I don't want to prohibit installment of newcomers, but it would be good to limit the numbers coming at each well. In that way the motorpump could be spared without increasing the taxes". (Ancient FuutankoBe herder, Djagueli Febr. 1993).

"Last year we were forced to limit the number of transhumants. They say that all Senegalese have the same rights. All the village chiefs around Djagueli got together and held a meeting. It was decided that transhumants could come and let the animals drink, and then continue elsewhere. We're saturated here. We contacted the sousprefet and the rural council. After that people have respected the decision." (Chef de village Djagueli, oct. 1994).

"There is much more jealousy now than was the case in 1983/84. It's now, where they have started copying on the newcomers and have large herds themselves, that the problems of rivalry arise".(Herder from Mbiddi, on transhumance near Loumbi Aly Thedy febr. 1993).

Comparing the level of conflicts and competition (or as phrased by the Fulani's "the degree of jealousy") over resources from the great drought periods of the 1970's and 1980's till now is of course a hazardous endeavour. For obvious reasons, it is problematic, in retrospect, to assess the degree of conflict which resulted from the insertion of the first contingent of "drought refugees" in the beginning of the seventies and eighties. Sufficiently reliable sources concerning the acceptance and tolerance of the local population vis-à-vis refugees of the droughts in the seventies and eighties are not available. In addition, reference to a traditionally high degree of solidarity in an undefined past would be tantamount to undermining my previous arguments. In these arguments, I have stressed how, due to the highly variable climatic conditions under which pastoral production is undertaken, pastoral production strategies tend to be based mainly on individualistic decisions, while rules and restrictions in general are kept to a minimum.

The impression is, nonetheless, that although conflicts and contradictions are recurrent phenomena in both intra-herder and nomad/sedentary relations (Hussein 1998), the general porousness and latent mobility inherent in these communities ensured a relatively peaceful reception of foreigners in what might be characterized as the first wave of drought related migration.This peaceful insertion was also assured by the FuutankoBe herders, who on their side also kept a relatively low profile vis-à-vis the settled population. They camped mainly in remote areas and endured, at least to some extent, the malice inflicted upon them by the "firstcomer' population. The general impression is that herders in accordance with the strategy described by Niamir (1900:32) as passive coordination[1], in general have sought to avoid conflicts and confrontations and have

[1]See also chapter 4.

accepted their status as 'strangers' with all it's connotations of marginal representation in the local resource management institutions.

In the course of the late 1980s and early 1990s the large majority of foreign' herders had managed succesfully to rebuild their herds and could no longer be considered as drought ridden and destitute kin, victims of climatic hazards and calamities. Concurrently with the economic consolidation of the foreign herders, it became clear that what distinguishes the settled first-comer population from the so-called strangers was not so much the date of installation but rather the very mobile lifestyle and the new herd management strategies which they had adopted. It was these differences in strategies which created what some first-comers perceived as a situation of unequal competition.

So when a new wave of southward movement began to take shape in connnection with the drought period of 1991/93 the indigenous population began to fear that these herders too would settle in the area on a more permanent basis. This, is was feared, would further increase the ratio of foreigners to locals. As a result, the claims for exclusive rights, which had been addressed ever more fiercely during this period, erupted during the drought of 1991/93 into genuine struggles to secure control over key institutions of resource management such as the well committees. Without stretching the argument too far, it seems liable that this pressure was stronger than had been the case during the drought years of the seventies and eighties.

In this sense the drought of 1991/92 which affected only the northern half of the Ferlo (mainly north of Tessekre) fits very well into the label of revelatory crises or event of articulation, where a shorter and evanescent event was used as a pretext for rendering formerly illigitimate claims acceptable. As will be shown below, the drought contributed not only to an upsurge of distinctions between (more) settled first-comers and mobile newcomers but also opened up for a process of privatisation of former common property resources and of commodification of formerly reciprocal arrangements.

Limiting access to water: the technical' solutions

As described above the migration wave prompted by the failing rains in the drought involved considerable inconvenience for the local population. As a means of self-defense a variety of new measures were taken by the local well commiteee to limit the access of strangers to the wells. Although methods varied, they aimed above all at making watering of large (foreign) herds as difficult as possible.

At some so-called *puits-forages*, where a motor pump facilitates the drawing of water from a relatively shallow well, the pump was blocked so that water had to be drawn by hand.

"Many of the small boreholes (puits-forages) do not function at present. They aren't even broken. People just don't want to make them function. They wan't to avoid having the transhumants to come. Therefore people have been getting together and have decided not to start the pump. They will turn it on once all the transhumants have passed. It's the first time that we hear of such measures being brought to use" (Agro-pastoralist Loumbi Sanrabe jan.1992)

"The pumps of Lour and Lombi Balaï have been closed to avoid that transhumants settle there. Its the first time that this method is employed. If you are ready to haul water by hand they let you stay, but those who have many animals are forced to continue. I think that it's evil. The wells were drilled by the state, they are meant for watering of animals. Its not because there are too many animals that they do this. It's because they wan't to stick to themselves." (Mauritanian refugee, Loumbi Sanrabe jan 1992).

Discouraging large herd-owners by forcing them to haul water manually is however only possible at the puits-forages. This well type, where water may be drawn either by hand or by pump can be installed only in those areas where ground water tables are relatively high-lying, as in certain parts of the eastern Ferlo. At the deep artesian boreholes found over the rest of the Ferlo, hand drawing is impossible. Therefore certain well committees have obstructed the connection between the reservoir and the drinking troughs of the animals so that the individual herders had to draw water by means of a hose sunk into the reservoir. Water was then filled into a container made from an oil drum cut in half from which the animals can drink. In this way the time and effort spent on watering the animals increased significantly.

The event depicted in the following box, decribes some of the controversies which arose as the flow of water from the reservoir to the troughs was constrained as part of the politics of keeping away foreign herders:

"We are now paying to water the soil , not to water the animals"

During the dry season of 1992/93 the well-committee of Ranérou did not open the connection between the water reservoir and the troughs. Herders were forced to water their animals by means of a hose. Each herder plunged a hose into the reservoir to fill up his personal trough made from an oil drum cut in half. The animals were then watered in small groups of 10 to 15 animals each. For each herd, the time spent on watering was considerably extended.

For the well-committee the aim was that to make the deep-well less attractive, particularly for those herders possessing large herds, and to make it easier to survey if any (foreigner) was watering without paying. According to the well-committee, it was also a way to force 'foreigners' to install themselves at the same distance from the borehole as themselves. This was justified, among other things, by a wish to protect the gum producing *acacia senegal* stands from marauding 'foreign' goats.

As a result of the new practice large amounts of water was wasted and a huge mud puddle was created around the borehole, increasing the liability of cholera infestations to occur and seriously damaging the foundation of the reservoir. As expressed by the herders: "We are now paying to water the soil, not the animals".

A first attempt by the FuutankoBe herders to protest against the actions of the well-committee did not give any positive result. Rather the foreigners were told to submit to the regulations made by the indigenous population. Later on, however, the case was brought to the local representative of the Ministry of Waterworks who showed up to object to the on-going destruction of state property. Nonetheless, the practice was continued.

In the opinion of the local veterinary assistant, it is primarily the FafaBe herders who are pressuring for closing off the connection. As large herd-owner with a similar mobile lifestyle these herders are in direct competition with the newcomers over the pastures. They are, according to the veterinary: "against the FuutankoBe herders". According to rumours it was these FafaBes who managed to bribe the well-committee president into keeping the connection closed in spite of the recommendations of the Ministry of Waterworks.

As in may similar cases, the incidence ended by getting to a violent outcome. In mid-november when Bathil Ba returned from transhumance the troughs of the deep-well of Ranerou were still blocked. While watering his animals by means of the hose, another herder wanted him to move away, claiming that it was his turn. Bathil refused, fearing that if he stopped watering before the animals were satisfied the cattle would trample down the sheep. As he didn't obey the other herder hit him twice in the head with a machete causing Bathil to go to hospital. They were taken to court and the herder had to make his excuses and pay him a compensation of 50.000 CFA. The day after the troughs were opened.

As can be seen, considerable ambiguity reigns in relation both to the legality of these actions and in determining which state institutions to hold responsible for stopping such acts. On the one hand everyone seems well aware that both wells and boreholes are public and access therefore is open. On the other hand the intervention of the Ministry of Waterworks was strictly limited to the eventual damage to public infrastructure (the undermining of the foundation of the reservoir) and did not go further into the question of restriction of use rights. On the contrary, they refrained from reacting when the malpractice persevered. And as access to water is not denied (which would be against the law) but hauling only made more difficult, the motivation for the *sous-préfet* or the police-forces to intervene was likely to be low. For as discussed above, local administrators in charge of securing law and order are generally favorable to local solutions aiming at restricting uncontrolled migration and free-riding on the local resource base. Besides they tend in general to be unwilling to mingle in local disputes, not the least if spheres of competence are as unclear as is the case here. It was therefore only when the hostilities developed into open violence that an intervention on behalf of the state administration was carried out.

Finally, the case is interesting in the sense that it shows how certain individual herders or well committees have taken advantage of the migration wave to try and discourage some of the old' FuutankoBe households, such as Bathil's, from resettling in the area, when returning from their periodic transhumance.

Scarcity and other justifications

Justifications for keeping out the migrants are various but often centre on the prospects of a situation of scarcity and on the fear of infestation from diseases presumably carried around by transhumant herds:

"The transhumants have destroyed the pastures. They come from the Waalo or they are refugees from Mauritania. If they hadn't come, pastures would have been sufficient for us and there wouldn't have been any problems with the sheep. But they have brought with them diseases that affect both sheep and cattle" (Rural Councillor, Jaen Fuuta jan 1992).

Also concern over the state of the mecanical equipment of the borehole or, in the Eastern Ferlo, the question of protection of the gum producing *acacia senegal* stands are prominent causes for worry. For as herders are spread around in the bush it becomes difficult to protect this important source of income from the hungry goats of transhumant herders[2].

[2] While both transhumant and indigenous goats are known to be liable of devouring the gum arabic bubbles exuded from the trees, also the foreign herders are cause for worry among the gum-tappers who frequently acuse them of having collected (and sold) the gum exuded from trees tapped by others.

"This year we have received many more animals than usually. The pump works from 7 in the morning to midnight with a 2 hour break in the afternoon. There are at least 700 foreign heads of cattle and a much larger amount of smallstock for each transhumant bring with them between 50, and 400 heads of smallstock.[3]*They eat up all the pastures and bring with them diseases. The well comittee cannot do anything to control the situation. There is no way we can regulate it. We started out trying to force the foreigners to camp away from the acacia groves, but it isn't possible. The only place where you find some pastures is in between the acacia trees. It isn't possible to prohibit people from coming. The problems is the lack of rain, not the arrival of the transhumants. But there are too many animals now*[4]*. If more arrive we won't be able to provide sufficient water."* (President of the well-committee, Jaen Fuuta. jan 1992).

As can be seen, herders generally express considerable ambiguity towards attempts at excluding transhumant herds. In the present case this is expressed through the competing explanations between the neutral failing rains and the more partial excess of animals. Justification for limiting the numbers is therefore often expressed in other terms. Very often common 'environmental flaws' such as bushfires or illegal cutting of trees, are attributed to the uncivilized behaviour of foreign herders, just as the growing problems of theft of animals is assigned to the foreigners, either as deliberate robbery or in terms of local animals joining foreign herds.

Finally the authorities have pointed to the fact that the early arrival of the transhumants contributed to increased cases of crop damage. This is true not the least for the number of officially recognized cases. For just as the increased number of animals present in the cultivation season increases the chances of tresspass and crop damage, the more distant relations between foreign herders' and local farmers also put a strain on tolerance and friendly relationships[5]. And as more cases are brought for settlement by the administrative authorities, the number of cases known to a wider public automatically increases.

An obvious cause for worry is the limited or at least contradictory authority and restricted means

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[3] The importance number of transhumant herds arriving at certain deep-wells during the 1991-93 drought can also be read out of the numbers of foreign herds present in Velingara in january 1992. According to the local veterinary asistant 18.000 heads of cattle were watered at the well, of which 5.000 were 'foreign' to this adds at least 10.000 foreign heads of smallstock.

[4] According to the accounts of the well comittee, the borehole of Jaen Fuuta hosted 23 'foreign' households during the month of january. This relates to a local population which according to the national census of 1988 (repertoire des Villages, region de St. Louis) is of appoximately 95 households or 500 persons.

[5] The intervention of the CER and the extension officers had, according to the agricultural extension officer in Barkedji, been requested in no less than 20 cases of crop damage during 1990. In a normal year' this is restricted to only a few particularly serious cases.

held by the local institutions in charge of managing access to resources. Views expressed by different interviewees clearly verbalise this confusion:

"The councillors and the village chiefs have discussed what to do. They have considered to get the President of the rural council to mobilise the police forces, but they haven't yet made use of this means. It's much easier to convince the well comittee to deny access to water to those foreigners who do not want to install themselves where it is proposed by the councillors. Once a herder refused to move to the allocated spot he was denied access to water and within a week he had moved out (Rural councillors, Jaen Fuuta jan 1992).

Despite the apparent firmness of the councillor, it is clear that few legal means for restricting the access of foreigners are available. Considering both the absence of restrictions in the letter of the law and the distance (over 50 km's) to the police forces, the call upon the police to expell Senegalese citizens from a public well, seems a hollow threat. As expressed below, the use of "technical" and hence not directly illegal dispositions seems a more adequate manner to deal with the increased number of transhumants:

"*With the law on the National Domain it is very difficult to prohibit people using the well and the pastures. There are no rules to apply. The wells are private property but nonetheless, it's very difficult to limit access. The only way to limit the number of newcomers is to block access to water. If the well contains little water, the foreign herders are likely to abandon the area within a short time, but if the well has plenty of water, it is almost impossible to persuade people to go elsewhere*". (Rural Councillor, notorious for having chased many foreign herders away, Bembem febr. 1993)

The various attempts listed above at making the borehole unattractive for foreign herds indicate the increased resource competition experienced in the Ferlo in years of partial or total rain deficit. Evidently the arrival of large numbers of transhumant herders often possessing very large herds constitutes a considerable constraint for local agropastoralists. The migratory movements from the North tends to trigger a "domino effect", whereby herders in the less affected areas are forced to follow the migrants once the scarce local fodder resources have been devoured. Such movements are likely to further social differentiation as small herdowners tend not to have the same capacities for moving to more abundant pastures as have the more livestock-rich. Indeed it seems that the attempts directed toward discouraging large foreign herd-owners from settling were more widespread in the eastern Ferlo, where the indigenous population primarily consists of relatively fixed agro-pastoralists possessing herds and flocks of more moderate sizes. As will be shown below attempts to take economic advantage of the increased mobility have been adopted more frequently in central Ferlo.

Taking advantage of the drought situation: the economic solution

The most frequent strategy set forth was the enforcement of exorbitant watering fees on foreign herds. This practice has, as mentioned above, been frequent throughout the Ferlo since the 1980s. Nonetheless, the increased mobility of the early 1990's encouraged the development of still more excessive taxation policies. During the dry seasons of 1991/92 and 1992/93migrating herders in the arrondissements of Ogo and Barkedji could unanimously recount how excessive taxes or direct denial of access had forced them to zigzag through the area in order to find a well where, as a minimum, the livestock could be watered before the voyage towards more friendly localities could be resumed. Many herders claimed to have used significant sums to bribe the various well committees and/or pay sums equivalent to a full month of watering at their usual well just to use the watering facilities of certain wells for a few days[6]. The considerable variation in taxing practices is well illustrated by the record made by Bathil Ba of his tranhumance trip in 1992/93:

"At our first stop in Fourdou I didn't pay anything. People there are all our relatives. In Naoré where we stayed 2 weeks, prices were reasonable. I payed 2.500 CFA for 14 days. The well of BemBem was the most expensive. There we had to pay 6000 CFA just for one week. After that we stayed in Loumbi, where the price was 14.000 CFA per month. At the well of Diamel, we paid 15.000 per month in salary to those who were hauling water. We had to provide the equipment (bucket and tackle) ourselves. Then I paid 10.850 at the borehole of Loumbi Aly Tedy for one month of watering. Finally in Malem Ba where we stayed 1 month and 19 days, I had to spend 36.000 CFA corrupting people and 20.000 in total on watering fees at the borehole. This is to compare to the fees I pay back home in Ranerou of 7.250 CFA per month",(Bathil Ba, Ranerou , 1993).

As mentioned, extraction of higher taxes for foreign herds normally means lower taxes for what is considered to be the "indigenous" population. Whether that is the case is obviously difficult to assess. The herds and flocks are seldom counted by head and taxation of "local" herds is to a wide extent is based on estimates which are not written down. Nonetheless the alleviation of watering taxes obviously contributes to make the arrival of large contingents of transhumants more acceptable to the local population. At some boreholes securing of such external "funding" has become a more a less deliberate strategy, where taxes are deliberately set a little lower than at the neighbouring well, in order to attract the maximum number of transhumants. In fact, a three layer taxation system may be discerned whereby FuutankoBe herders who have been residing in the area for several years are overtaxed according to 'usual' rates , while new transhumants are more

[6] Due to the lack of transparency it is difficult to get an accurate picture of the prices payed. Arrangements are variable as are the servive involved. One herder for example complained that the price of 3000 CFA Francs for donkey-carts in some boreholes covered several carts, while at other one had to pay seperately for each cart.

excessively taxed.

This graduation of taxing could be read out of the common practice of using a *diategui*, a host, in whose name you can water your animals or who can negotiate a more reasonable taxation rate with the well-committee. The practice of using a host, is yet an exampleof the many ways in which the presumed 'victims' of the policies of exclusivity manage to evade attempts at discimination. Such services are of course reciprocal in the sense that they often release granting of certain favours to the host, just as they contribute to increase the host's personal status:

" *I arrived to Loumbi in 1973 as part of a larger group of FuutankoBe herders. But I was the only one to stay. I'm a hunter and there was a lot of deer in this area. When the drought of 1983/84 pushed a new wave of FuutankoBe herders to the area, I helped them to get installed, The local population wasn't too friendly, so I undertook the negotiations concerning access to the well. There are always some of the locals who want to chase away the newcomers, but I'm there to help settle the matters. Now there is a better understanding between the two parties*" (Ancient FuutankoBe, Loumbi Aly Thedy , Koumpentoum 1993).

But not only legal means have be used in the attempt to make the best of the situation. For certain political notabilities, the installation of foreigners has provideda new possibility for extraction of material gain. At a public meeting with the Governor of Louga in Barkedji in 1993, a new practice was revealed where certain rural councillors abused their authority to make transhumant herders pay for the right to install themselves in the pastures. This clearly illegal practice was vigourously condemned at the meeting. Whether the practice was widespread or not remained unclear as no one would stand up and admit to have received or have been given anything as part of a negotiation regarding provisional settlement. Nonetheless noone seemed to doubt the existence of such practices:

People negotiate their provisional settlement with the village chiefs[7]*. It's not in conformity with the law, they are all Senegalese citizens. Nobody will admit to have received or given anything to anyone as payment for their installation. But as rains have failed again this year, it is most likely the illegal commercialisation of rights of settlement will resume again"* (Sousprefet, Barkedji, Oct. 1994.).

According to other sources, such illicit commodification of the right of settlement may be carried

[7] It's interesting that the *sous-préfet* blames village chiefs for this illicit practice, as all other sources pointed to the councillors. Apart from the possibility of it being a slip of the tongue, one explanation could be that the position of the *sous-préfet* is under far more pressure from the politically elected councillors than from the village chiefs.

out under different guises. Frequently, the councillor will claim that the transhumant has settled on what is a recognized cattle path (an issue under the authority of the rural council).'Payment' then takes the form of a "fine" payed to the councillor. In this way it represents yet another example of how such commodification of former reciprocal arrangements (the free movements on the range) is given a 'legal guise', thereby making it socially more acceptable.

Exclusive rights and the heterogeneity of interests.

The transgressions of Fulani norms of hospitality revealed above are, however, not neccesarily acceptable for the population as such. In line with the ambiguities running through many of the statements cited above, many local herders have expressed their concerns over the ill-treatment of foreigners:

"Closing off the wells is not correct behaviour. The calamities which have forced these people to move could affect ourselves next time - and besides where there are many people there is also more happiness" (President of the well-committee, Loumbi Sanrabe 1992)

As expressed by the well-committee president neither the denial of access to the watering facilities, the differential and excessive taxing of the migrating herds nor the (few) attempts at commodifying the rights of camping on the open range are in accordance with the customary norms and regulations related to local resource management. They are also in disagreement with the legal framework covering watering and grazing facilities, which stresses the equal and open access rights of all Senegalese citizens. Putting forward claims of exclusivity to resources that have previously been free for all, has therefore required considerable efforts in terms of constructing a moral pretext for transgression of Fulani solidarity. The reaction of the local population is therefore also full of contradictions and ambiguities:

At the smaller puits-forages in the eastern Ferlo, which are normally not used by more cattle-rich agro-pastoralists due to the labour constraints attached, the gestures of closing the pumps must be interpreted as clear acts of panic from a population with few alternative means of survival. At the larger boreholes the situation is less clear. Here the cry for exclusive rights is promoted primarily by the politically strongest groups of herders and agriculturalists. It is mainly among these groups that the situation of scarcity is put forward as justification for restricting the use of commonly owned resources such as water and pastures. In this way they seek to adjust the system in their favour. For while high degrees of permeability and free access to water and pastures are preconditions for a mobile and extensive livestock system, the indigenous system of production has been moving towards increasing sedentarization ever since the installation of boreholes in the 1950's. Such a system evidently works in favour of development of more exclusive rights. For these groups mobility no longer contains the same predominance as a risk management strategy

whereas exclusive rights could turn out to enhance possibilities for more pragmatic herding strategies where pastures are preserved for a limited group of users.

It is therefore among these groups that scarcity has been used most frequently to legitimize the tendency towards a commodification of social relations. Such legitimations could be traced in relation to the attempts by influential sedentary herders to generate revenues on their drought ridden kin, either through exessive watering fees and by commodifying the rights of camping on the range.

Such call for exclusivity is nonetheless not without its contradictions. First of all, the arrival of the economically potent foreign herders increases prosperity not only through the deep wells, but also in the general economic life of the villages. Local trade in livestock, often an important supplementary activity of the local agro-pastoralists, is boosted as are the weekly markets. The same goes for sale of grain from the peasants and the turn-overs of the local shops, owned to a large extent by the settled agro-pastoralists. Furthermore, the foreigners often contract local youth as salaried herders just as a wealth of services and gifts are exchanged to improve the relations between the two parties:

"I get along very well with the transhumants. I do not wish them to leave. We help each other hauling and transporting water. When they go looking for hay, they always provide us with a cart-load, and they lend us their oil drums and their hose so that we can draw water from the reservoir. If they go to the market in Galoya [in the Fuuta] you can always get a lift on their cart. At present, where we are in the dry season, the transhumants do not dispose of any milk, but otherwise they would be sure to offer you some". (Sedentarised herder with few animals, Loumbi SanraBe 1992)

"The only one who has shown some hospitality to us is the shopkeeper. He also defended us at the meeting"(Transhumant herder, Thiargny, febr. 1993).

And even at borehole level one finds examples of well committees which have intervened more directly to ensure more peaceful relations :

"Last year rains were good and many transhumants herds stayed in the area. All went well. The well committee had engaged a griot [traditional praise singer] to travel around in the settlements to tell people that the transhumants have the same rights as the rest of the population". (Agro-pastoralist, Thiargny febr. 1993)

In reality the opposition between 'foreigners' and 'locals' is less antagonistic, than what could be anticipated from the conflicts described above. Many alliances and social relations are created and upheld between the two groups, alliances which may be brought into effect for example in the

struggle against the encroachment of peanut farmer upon grazing lands. Part of the explanation for the significant decrease in requests and attributions of land to mouride marabouts and peanutgrowers in the course of the 1990s could be attributed to the numerical and economic reinforcement of herders vis-à-vis the cultivators,whci was provided by the FuutankoBe 'invasion' in the area. This situation enforced herders' possibilities of presenting their protest at higher state-administrative levels (see Juul, 1991).

Furthermore, it is important to note that, although mobility for these relatively sedentarized herders has decreased in some ways, it has not disappeared altogether. In a highly risk-prone area as the Ferlo, local or generalized drought, bush fires, ticks, disease, or failure of crops still requires the possibility of seeking refuge in less affected areas[8]. Also the frequent breakdown of borehole equipment favours a less hostile relationship with neighboring communities. In fact the tendency for increased sedentarization is parallelled by a tendency towards increased mobility. As described in chapter 4, the technological innovation provided by the tubes has largely been taken up by local agro-pastoralists who now attach more importance to raising small stock. Together with this strategy goes the adoption of more mobile lifestyles, although seldom as mobile as those followed by the FuutankoBe herders.

All this brings about a paradoxical situation where herders stress mobility and the need to move across the range when describing their herd management, but emphasize their fixed location when discussing rights to water and pastures[9]. Consequently motivation for coordinating resource use has seldom been sufficient to support development of an extended set of rules and of institutions capable of the implementation and sanctioning of such regulations. Struggles to limit the number of users should therefore not be confused with a desire to improve local resource management or an urge for more sustainable methods of resource extraction. Conflicts tend to be related more to struggles to gain control over key institutions than to competition over presumably scarce pastoral resources.What is at stake therefore turns out to be the political power that securing of control over the productive resources is expected to generate rather than long terms ecological concerns.

The reaction of the FuutankoBe herders.

Before passing to a general discussion of the struggles over resource control in post-drought

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[8] Among the more sedentarised herders who have been most eager to exclude foreign herds are the herders from Widou Thiengoly and Tessekre. Nontheless, these herders have, at several occasions, been forced to move southward because of large bush-fires (1988) and droughts (1991 and 1993) and have been forced to capitalise on a solidarity to which they did not contribute in their area of origin.

[9] A similar situation is described by Peters from Botswana (1994:108)

Ferlo, it is interesting to have a closer look at the reactions of the FuutankoBe herders to these attempts to strengthen local control with the resources crucial for pastoral production: water and pastures.

As noted above, nomadic societies are generally characterized by a lack of central institutions and systems of political representation. Reactions to harassments therefore tend to be individual and passive (the 'passive coordination' or the 'choreography of movements') in order to avoid conflicts. In those cases where the herder disposes of sufficient means he will tend to try and settle conflicts through individual arrangements. Such informal settlement often includes some elements of bribing of neighbours, local politicians or eventually local administrative authorities. Compared to sedentarised farmers a special feature of the mobile herders is however, that herders under pressure may chose to make use of their mobile lifestyle and move away from areas of conflict. This is one explanation of why Fuutanke herders in the first period of settlement in the southern Ferlo have involved themselves very little in local affairs.

In recent years the increased wealth and power of the FuutvakoBe herders have contributed to alter this situation. Confronted with the general mismanagement of the wells and with an increasing number of attempts by certain "local" groups to use the well committees as a means of exclusion or extraction of revenues, FuutankoBe herders have, as will be described below, embarked on a set of new strategies.

Improving the bargaining position.

Increasingly, well committees have come under pressure from Fuutanke herders who demand representation on the board in order to ensure proper functioning and to control the considerable financial resources collected by the well committee.

"Those who are in the well committees hardly possess any animals themselves. Hence they show little concern for the well-being of the animals. Until recently, it has been almost impossible to react against all the abnormities.But now, after the dry years, we are more egge-egges, and we are better able to react against the malpractice. We are getting organised to get more control over the well-committee and information about the money, the turnovers etc. We have the means to go to the authorities. For us it is an advantage if many FuutankoBe herders come and settle. That could make things change, but the inconvenience is that it would increase competition on pastures" (FuutankoBe herder, Ranerou Febr.1993).

"We have tried to make a well committee comprise of only herders with many animals. We ensure that the reservoir is always full of water, and that all transhumants are received on the same conditions as those settled around the well. Those who come will probably have a relative who

is member of the well-committe, and this relative will explain the modalities to the newcomer. We receive a lot of transhumants every year. That's because we are more friendly. After the FuutankoBe herders are represented in the well commitee, they function much better. Now it's recognised that the well is for everybody and everybody pays. The local population recognises the rights of the newcomers. In the beginning we had to keep quiet." (FuutankoBe Accountant, well-committee, Fourdou)

The first-comers have in general exhibited fierce resistance to any division of power, an attitude which in most cases has been backed by the local administration. As discussed above, such resistance is most frequently being legitimized by suggesting a dichotomy between "strangers" and "locals". In this way the "local" population seeks to establish a discourse linking up with a central assumption in the decentralization framework, i.e. the existence of a homogeneous and fixed' group of local users, which should be given more firm property rights. Such rights should, it is held, includ the rights to exclude 'foreigners' from use and decision making[10]. But as mentioned, the existence of such clearly defined groups of users is certainly a matter of redefinition and reinvention of the past espacillay in areas such as the Ferlo which, due to variability in climate and resource use, are characterized by high degrees of mobility and therefore a very fluctuating population.

One of the things that contributed to open up for a new situation was paradoxically enough, the perpetual embezzlement of funds which characterizes the large majority of well committees in the area. If a pump breaks down, herders are forced to move their herds to a neighouring borehole, located approximately 25 km away. This involves considerable risk for herd-owners (notably those used to a more sedentary lifestyle). Purchase of expensive spare-parts has therefore proved to be a comfortable platform for negotiating a partition of power where wealthy FuutankoBe herders were able to trade financial help in emergency situations for representation in the well-committee[11].

An example of such bargaining is the case of Djagueli:
"Later there was a problem with the borehole pump. The rural council told us to decide among the village chiefs whether we would pay and have it repaired or wait until the brigade of waterworks could find the means to repair it. The local herders had no possibilities of paying. We decided to take it in charge and collected 700.000 CFA for the repair". Village chief of Fidjiti,

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[10] See for example Bromley and Cernea,1989:15)

[11] This strategy had been used successfully in at least 3 cases (in Djagueli, in Yonofere and in Fourdou).

Djagueli.

In return for this favour, the *UrurBe*'s a FuutankoBe subclan, which has been present around Djagueli in large numbers since the beginning of the 1970's were granted two key positions within the well commitee (that of president as well as that of accountant).

But as stressed in chapter 3, such decisions are always open for renegotiation. In spite of the feeling of superiority expressed through the underlining of the limited economic resources disposed of by the local herders' the new (and evidently more adequate) representation proved short-lived. Within a period of less than a year, the local population had managed, in spite of their numerical inferiority and restricted economic contributions, to overthrow this new board and re-conquer the central key-position of president. Needless to say all these transactions have been taking place without any preceding elections.

The attribution of seats in the well-committee is however not only a matter of making the well function properly. Along with the growing recognition of the key status of the well committee, these committees also become the scene of local power struggles between representatives from different factions (see the deploration by the sousprefet of the battles between tendency A and tendency B in Naore, for example). Being vital institutions in local economic and political life, the well-committees are used by the local political elite to gain (or trade) support for their own political career within the ruling and (until recently) all embracing Socialist Party[12]. This politization of the well-committees is particularly explicit in those smaller villages where other state connected institutions (such as the rural council or the *sous-préfet* and CER) are not present.

In several such cases FuutankoBe herders have managed to play very skillfully on the internal rivalry between opposing political candidates of the local community. The means for doing this has been the institution of local purchase of party cards. Purchase of local party cards plays a crucial role in the internal alignment of candidates as they are used to measure the support that opposing tendencies within the ruling Socialist Party can mobilize on the local level (see Cruise O'Brien 1975:174). In times of approaching elections, FuutankoBe herders who constitute an important economic backing for some of the local candidates, took to refusing any purchase of party cards before the posts of treasurer or president were granted to a representative of the FuutankoBe population, a pressure which turned oput to be very efficient.

[12] Since the beginningof the 1990's opposition parties such as Abdoulaye Wades PDS and Abdoulaye Bathily's LD-MPT has also acquired (sporadic) representation in the small villages of the Ferlo.

Bargaining party cards for representation:

"In 1987 when many FuutankoBe herders were present in Yonofere a meeting was held in the well-committee. During the meeting the Fuutankobes announced that as it was the FuutankoBe population who paid the bulk (80%) of the running costs of the borehole we also wanted to be represented in the board with at least 2 members. It was in connection with the presidential elections. FuutankoBe herders therefore conditioned their purchase of party cards by the granting of board membership.

Last year the indigeous population wanted to overthrow the board. This is why we called upon the sous-prefet. The indigenous population did not wan't to have transparency in the running of the borehole, although it worked faultlessly. There was even more than 750.000 CFA set aside for repairs and maintenance.

Last year the local rural councillor died. He had always received the FuutankoBe population very well. After he died the indigenous population took up their hostile behavior again. At present the local population are hoping that the FuutankoBe herders will help to foot the bill and pay to repair the motor. But we won't do it unless we get posts in the board in return.

The indigenous, primarily SanraBe, board members are very hostile. Lately, they have even confined a number of donkeys. To set them free, they demand 2000 Francs. They claim that it's to cover their watering fees." (FuutankoBe accountant of the well-committee, Yonofere).

Also in other cases (as in Naoré), it seems that political support for a certain member of the well committee, has been a term of trade for the 'foreign' herders to gain access to the board of the committee.

Both cases point not only to the fluidity of political representation but also to the importance of personal political relations. As can be seen, decisions regarding board representation in the key instititutions are always open for renegotiation. Rather than determined by the existing rules and regulations (concerning transparency of accounts or democratic representation), the outcome is to a wide extent determined by the ability of the various actors to manoeuvre skillfully in the power structures reigning at the moment. An important weapon in this struggle is the ability take advantage of the various opportunities offered by the moment (such as the national elections or the mechanical breakdowns).

Investment in clientelistic networks

Evidently many of these victories are temporary and may be modified once the power relations at the local level turn in favour of the 'locals'. In the words of the deputy of the Prefet of Matam:

"Every time there is trouble in the management of the wells, some FuutankoBes are integrated into the well-committee in order to get hold of some money. Afterwards they try to get rid of them again as quickly as possible".

In order to strengthen their positions, FuutankoBe herders therefore increasingly participate in political power struggles and seek to position themselves to gain control over resources. In this process investment of their newly acquired economic wealth into social capital is also used.

Conscious of their weak political position as foreigners, many FuutankoBe herders have until recently sought to settle conflicts through individual negotiations. *Arrangements a l'amiable* (arrangements on friendly terms) have been the most common way of settling for example cases of crop damages. This ranges from "tolerating" (i.e. making no demand for compensation) to open negotiation between the two parties over the size of the compensation, eventually in the presence of witnesses, eventually the village chief). The frequency of the latter type tends to increase as harvesting approaches.

From the beginning of the 1990s the number of complaints[13] presented before the local officials seems to have increased dramatically. This was partly due to a general rise in the level of conflictivity due to increased mobility when rains failed in 1991-1992. The rising number of complaints was, however, also an indication of a new tendency among FuutankoBe herders to try to gain support further up the political-administrative system in those cases where no satisfactory solution could be found locally. Compared to the previous, very individualistic and dispersed attitudes among newcomers, such attempts presupposed a higher degree of consensus than had been prevailing until then.

One way of generating such consensus has been through the increasing number of religious festivals, such as the *Maouloud* (the profets anniversary) celebrated for members of particular sub-clans by *marabouts* in the area of origin[14].

"Maouloud is an occasion for all SowonaBe to meet at Mbiddi, where we have our marabout. We come to pray and to celebrate the aniversary of the Profet. Everybody brings something, even

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[13] This is also reflected in the increasing number of conflicts over crop damages which are not settled locally between the two parties but negotiated by the extension officers.

[14] This is of course a very bleak parallel to the very active associative life sustained by periodic ritual in terms of pilgrimmage and songs, characteristic of the Mouride muslim community. According to Cruise O'Brien (1996:459) associative life among the Mourides constitutes what amounts to a religiously based civil society, more or less the social foundation of the Senegalese state.

those who cannot come themselves will send a contribution. Women may for example give some butter while men may send an oxen or a sheep. It is a festival of religious songs. It's not for making politics, but of course there is a lot of debate going on.

At the boreholes the SowonaBe talk with each other. They find someone to whom they can present their grievances. Either they pass by the Sousprefet, but if that doesn't satisfy them, they continue to someone higher up in the system. They may even demand to be received in audience by Djibo Ka [the minister of Interior]. This can be organised through his servant at a cost of appoximately 25.000 CFA. Also Amadou Talla [Director of the Dakar cattle market, see below] can help. Anybody may help us.(Interview with Yerim and his brother in Ganina,1994)

Whereas herders vigourously deny that these religious meetings have political functions, the possibility of discussing common problems with people of one's own lineage, have materialized in several coordinated actions on behalf of the migrants. The ethnic gathering of the SowonaBe undoubtedly had an impact on the formation during the dry season of 1992/93 of a delegation of SowonaBe herders who were sent off to Dakar to obtain interviews with the Minister of Interior, at that time Djibo Ka, a Fulani closely related to the settled first-comer herders. The protests concerned the sweeping practice of discriminatory watering taxes and direct exclusion of trans-humant herders at the wells. Also other delegations were sent off during 1993. These protests conveyed much of the same message, but also included denouncements of the new practice among counsellors and village chiefs of "selling" rights of installation to transhumant herders described above.

As in the case of Naoré descibed above, these 'protest initiative' of the FuutankoBe herders, turned out quite successfully. Shortly after the delegations had passed, the Minister sent out the Governor of Louga on a campaigning tour in the arrondissement of Barkedji to mediate. The Governor vigourously stressed how all users are supposed to contribute on equal footing in the functioning of the deep well. He further condemned the hostile manner in which transhumant herders were received in the area, and lamented the way in which they were over-taxed at the boreholes and eventually even forced away after a few days of watering. He also denounced that foreign herders in some cases were forced to move their camps from the bush to stay at the same distance from the deep well as the sedentaries, and that cases had occurred where they had been forced to pay for their settlement. "*Transhumants* he said, *have the right to settle and do not have to pay more than others*".

The governor instead invited the audience to strive for peaceful cohabitation. He enjoyned the population to prevent straying of animals into areas of cultivation, to resist purchasing of animals of unknown origin which might be stolen and to refrain from admitting foreign animals into ones own herd (a common accusation towards *egge-egge* herders implying 'unconscious' theft). Finally

the audience was asked to abstain from using the term "egge-egge"[15] considered by some as pejorative. "*We are all senegalese!*" he proclaimed.

The Minister of Interior and his representative, the Governor, in this way fully acknowledged the rights of the migrants to move freely over the range. The equal rights of access to water and pastures were confirmed, whereas the dissent of the first-comer population was overheard.

This newly acquired ability to set the agenda and control the outcome of state interventions seems to be the result of a set of new relations knit between the FuutankoBe herders and the central spheres of influence in Dakar. Access to the channels of political influence seems to be gained though a variety of (clientelist) channels and intermediaries, revolving around the two main properties of Fulani life, Islam and livestock. Islam represents itself through the marabouts, notably the Tall family who occupy central positions in the Tijanya brotherhood and are extremely influential among the herders from the Senegal River Valley. The 'livestock channel' goes through the influential director of the Dakar cattle market who according to my informants "is much listened to in government circles". The latter provides the advantage of being easily accessible either through personal interviews in his noisy and untidy office in the heart of the cattle market or through the two continuously busy telephones through which he keeps in permanent contact with both the herders in the interior of the country and his relations in the highest government circles.

[15] In FulBe egge-egge means:"those who are always on the move".

Amadou Talla, Foirail de Dakar,
Nov 1994.

"I'm the boss here. I even represent the head of state. I take care of peoples problems, and try to reconciliate them and settle their disputes. I try to help them to find out who is right and who is wrong. If that doesn't work out, we have no other means than to call the police.

Normally the problems brought to me from herders in the interior are about thefts of animals or the problems of herders being refused at the boreholes. I also take care of cases where people have problems with the police or the custom officers[due to the extensive smuggling carried on along the frontiers].

A lot of people call me on the telephone. They call even from Mali or Mauritania. Everybody, all over the territory who is concerned with livestock, seller or buyer, know that I'm ready to help them. I do what I can with for example the Governor or the state administration. I can get in touch with the Ministor of Interior or the Director of the Department of Livestock.

With regards to the problem of watering taxes it's obvious that all should pay on equal footing. This year wheee rains have been abundant there won't be as many problems. Now people will become closer to one another.

The problems are mainly created by the indigenous population. They use the borehole to do politics, giving favours to some [at the detriment of others]. When the village chiefs complain, I tell them that all senegalse have equal rights. But if the problems do not stop I'll get the name of the person creating problems and I can go and present the problems to the Minister of Interior".

Obviously the above quotations is telling not the least of the influence held by Amadou Talla in his own self-knowledge.Nonetheless, his doings in connection with the FuutankoBe delegations of protest appear to have had considerable effect. Indeed, the delegation-event incarnate some of the most open and flexible aspects of Senegalse politics.Through connections, such as Amadou Talla the distance from the presumably marginalised herder to the center of decision often turn out to be far shorter than anticipated. Despite it's negative attributes, the extremely personalised[16] and clientelistic features of Senegalese politics (the so-called clan politics mentioned in the first part of this chapter) contribute to the establishment of connections between the bureaucratic centres

[16] In spite of Talla's claimed impartiality it is nonetheless precisely his position as a *ressortissant* (citizen) of the Senegal River Valley which provides him with the qualities required for ethnic identification

and the largely illiterate rural population which by and large have proven both viable and efficient[17] To investigate how access to political decisions relate to social differentiation is however beyond the scope of this project.

The relative facility with which one can get access to the centres for decision-making is further illustrated by the recent introduction of public telephones in some of the larger villages of the Ferlo.[18] Very quickly these telephones booth, which constantly attract a large group of ' listeners' eager to pick-up the latest gossip, have turned out to be important instruments for disseminating rural protests. As was experienced at several occasions during fieldwork, local politicians do not hesitate to call the politically most influential persons, such as the Minister of Interior, if decisions are taken at local level of which they do not approve[19].

The use of intermediaries between the different levels of society is no recent feature in Senegal. Relations between state and local communities have long traditions for been ensured through brokers and networks of political patronage where favours are exchanged for political allegiance. The most well-known example is that of the mouride saints (the *marabouts*, see Cruise O'Brien, 1971 and1975). Such use of intermediaries is not unique to Senegal. Sara Berry describes how throughout Africa the outcome of those rural disputes which are regulated outside formal judicial proceedings hinges on relations among neighbours and kin and how situations of increased competition over land and labour encourage investment in social relationships (Berry, 1993:162).

In the case of the settled Fulanis of the Bakedji arrondissement, complaints as well as investments have tended to pass through Daouda Sow, former president of the Assemblée Nationale and after his dethronement in 1989 his nephew Djibo Ka. In most cases this is done even before they have been presented to the local admistrative officers. In relation with case from 1994 where a Mouride *marabout* transgressed the lot attributed to him by the rural council and had started cultivating into someone elses fields, a villager explained how the upset villagers instead of warning the *sous-prefet*, had sent a politician from the locality to the recently installed telephone booth of Barkedji to complain directly to Djibo Ka. "*No*, he exclaimed, *we did not have the sousprefet to intervene.*

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[17] Apparently they are accessible even for people with relatively limited means, as in the case of Djibo Ka, whom one apparently could reach by bribing the servant (*planton*) of Djibo Ka with the fairly accessible amount of 25.000 CFA i.e. 250 French Francs

[18] The public telephone booth in Barkedji was installed in 1991 as one of the first village telephones in the Ferlo.

[19] This was for example the case when the mouride farmers of Samali (near Barkedji) illicitly had started cultivating some fields which apparently were the property of some local non-mouride farmers. A local politician telephoned the Minister of Interior and shortly after he visited the place in question.

He is not part of the family. Here we are SanraBe; we are the kin of Djibo Ka" (Barkedji, 1994).

But while such political intervention until recently was the terrain of the (highly politicized) settled kin of the Dakar politicians, the increasingly difficult conditions for gaining access to water and grazing lands and growing economic potentials, has, as shown, also incited the transhumant herders to present their claims further up in the Senegalese political hierarchy.

Therefore, the perhaps most interesting aspect of the protest delegation incidence was how the Minister of Interior (although only by means of an emissary) chose to stress state ownership to pastures and wells. Thereby local attempts (by his own kin) to regulate access to natural resources were overruled. Obviously the interpretation chosen was is in conformity with the letter of the Land Law. But bearing in mind the many ambiguities of the legal framework, and the general trend towards granting more rights to local population framework, a possibility must have existed that could have provided for a more subtle expounding of the texts, hads thos been the intention of Djibo Ka. Such an interpretation would obviously have appeased the position of the decentralised state administrators in charge of implementing the decentralisation policies. These administrators have long traditions of favouring the local settled elite and have been incessantly been urged to bring about a settling of nomadic pastoralists. Nonethelss, is seems that the message delivered, should be interpreted more as the continuation of the status quo rather than a firm victory to the mobile population. For as long as crucial issues such as the discrimination of Fuutankes in the composition of well committees is left unacknowledged, the local power relations have largely been left untouched. Hence the incidence is rather an example of the functionnal ambiguity, described in the beginning of this chapter whereby the state, by maintaining a situation of fluidity, manages to obtain a situation of non-expressed consensus between the different stakeholders at local and at national level.

Straddling between different identities:

In general the legal framework concerning local resource management is contradictory and vague. The limits between what is state ownership, what is open access and what is under local control remains rather unintelligible. With regard to the wells no clear definitions exist specifying, for example, who is to be considered a 'regular' user eligible to the board of the committee. The distinction between insider and outsider being contested terrain, this situation obviously lends itself to considerable manipulations and redefinitions of rights and status.

As mentioned briefly above, one of the means employed by Fuutanke herders to position themselves most favourably in the struggle over access and control over resources has therefore been to straddle between different identities.

In the cases described above, transhumant herders have chosen to launch their protest in their capacity of *strangers* claiming their free rights to make use of publicly owned resources. This pushed Djibo Ka, who has close family ties to the majority of the *local* politicians of the area to intervene against the interest of his own relatives and in favour of their adversaries, the FuutankoBe herders.

Other cases of conflict concern the definition of who is most *local.* This is in partiv´cular the case of those conflicts which relate to the functioning of the well committee. Here the battle stands between those claiming to be the genuine "locals" - and therefore the sole legitimate caretakers of the wells - and the FuutankoBe herders who claim to be as legitimate users. They refer to their protracted presence in the area and, not the least, to their significant contributions in terms of watering fees to justify their claims for more equal representation..

Consequently, it is important to bear in mind that, although the position of "foreigner" may offer substantial advantages in certain cases, herders also strive to acquire the status of "local" with all the rights and privileges pertaining to that role. Depending on the nature of the dispute the same individuals will select the most appropriate social identity and appeal to both customary tenure rules and national land ordinances, singly and sometimes in combination and will invoke whatever ideology and cultural symbol are most appropriate to substantiate the claim. (Goheen, 1992:403). In the main themes of conflicts played out at present, the free access to pastures and the control over the deep wells, herders are likely the choose opposing identities in the two cases. These roles are, however, not fixed but may change in the course of the conflict where this proves more convenient.

Transgressing from stranger to local: officializing strategies
a). The role of taxes:

"Here the population is not very friendly. But we pay our taxes and have our vaccination documents in order so that we can prove that our animals are not ill. Then they can't chase us away even though they have tried. Back home in the Fuuta, we used to receive many foreign herds, when the pastures were abundant there.Even during the drought of 1983/84 people were more hospitable. Now everyone want's to fill up their pockets. The change is related to the state of poverty. The transhumants are richer than the firstcomer population". (Transhumant herder, Thiargny febr. 1993)

The need to have documents in order and to be in conformity with the law are generally recognized as important preconditions for moving freely on the range. Lately also tax paying has acquired prominence as a theme played through at the local level when determining how and when the Fuutanke herders can transmute from the status of "foreigner" to that of "local".

The taxes referred to are those collected by the rural council of which a certain percentage is returned to the local community for development purposes. Although taxes are moderate even for small producers[20] only a very small minority of the Fuutanke herders pay them. Many of them, however, claim to pay their taxes in their area of origin in the Fuuta. This has, evidently, been the case of those migrants who have wished to retain rights over land in the Senegal River Valley but were afraid of loosing these rights in case the land was subject to development of irrigation.

Once people have left for the South they don't have time to come back here and pay their taxes, and I don't have time to go down there to collect them. Some village chiefs do go there to collect taxes. People wan't to pay here. This is their territory and they wan't to keep their rights over the waalo land. (Ardo Ururbe DjougonaBe, Madina Ndiatabe (waalo))

As can be read out of the somewhat contradictory statement of the *ardo*, the large majority of newcomers do not pay taxes anywhere. This situation is, however, shared with a large part of the local population[21]. Nevertheless the payment of taxes has all of a sudden become the symbol of division between locals and strangers. Although tax payment is a requirement for those wishing to present themselves as candidates to the rural councils, payment of taxes is no exigency for obtaining more secure rights over pastures and water. It seems, however, to have acquired some sort of symbolic meaning as it is often referred to by both Fuutankes present in the area on a more permanent basis and by the local leaders as a sign of political allegiance, a sort of tribute paid to the local notabilities. In this way tax payment seems to have become one of several ways of signalling integration, an act which is expected, on shorter or longer terms, to materialize in some sort of protection of use rights.

Bourdieu terms such activities "officializing strategies" as they aim at transmuting "egoistic" private and particular interest into disinterested, collective, publicly avowable, legitimate interests"

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[20] Rural taxes are head taxes of a fixed amount; at the time of fieldwork 1000 CFA pr. head. The taxes are collected by the village chief who transfers the funds to the tax collector of the Rural Community. In principle they are given a receipt for the total amount of payment, and by way of renumeration for the services rendered, an indemnity of normally 10% of the tax collected is provided (Blundo, 1998:6).

[21] It is interesting to note that while tax payment is gaining some prominence among newcomers, the latest administrative reform of 1991 which transfers the responsibility of tax collection from the sousprefet to the rural council has resulted in a dramatic decline in the amounts collected. One of the reason is that the rural councillors, in contrast to the sousprefet, do not collect taxes accompanied by the police forces. According to the Minutes of the Rural Council of Barkedji only 900.000 CFA out of a possible 5,9 million CFA had been collected by the newly elected councillors in 1991.

(Bourdieu, 1977:40). Hence, payment of taxes represents a way of officialising one's presence in the area of reception. Another interlinked strategy is that of being recognized as village chief.

Precisely because of these officializing attributes, the payment of taxes and the appointment of village chiefs (encharged with collecting these taxes) have become a matter of fierce opposition among parts of the first-comer population. For just as local herders use the lack of taxpayment as justification for limiting the rights of newcomers, very strong political pressure and creativity is invested in constraining development of tax-collection among foreigners. The various political agendas involved in the simple act of tax paying is expressed very pertinently by the FuutakoBe accountant of Yonofere:

"It's true that conflicts are increasing. There are more people and more animals now. More and more transhumants arrive from the North. The indigeous population fear that these people also decide to settle here for good. They fear that as the FuutankoBe population increases they will start claiming to be represented in the Rural Council. But this goes only for those who pay their taxes here. That is why it is sometimes very difficult to get to pay your taxes. This has caused many transhumants to give up paying taxes".

b). The long road to recognition; the appointment of 'foreign' village chiefs:

It is symptomatic that although officially appointed by the Ministry of Interior, the status of village chief is a fairly hollow title endowed with little actual powers. The rights to distribute land and control local resources were lost already with the passing of the 1966 Land Law (Loi sur le Domaine National). Today village chiefs are first of all in charge of overseeing that national laws and regulations and decisions of the rural council are observed within his village. He is furthermore in charge of keeping the civil register and, more important, of collecting rural taxes in his village[22].

The interest of the Fuutanke herders in the office of village chiefs lies primarily in its official attributes[23]. By acquiring the symbols and roles of traditional chiefs, these herders validate the legitimacy of their claims. In assuming the role of traditional head of lineage (a sort of local representative of the *ardo*, the traditional clan leader) they reproduce a social, not an individualized identity for these are social not individualized roles, with obligations as well as

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[22] Decret 72-363, Ministère de l'Interieur.

[23] Yerim Sow expresses his priorities in this way: *"I'm not very often asked to participate in any meetings. It isn't very important for me. There is a guy at the borehole who informs me of what's going on. Sometimes he is my stand-in at the meetings. I can't go by cart all the time to Barkedji, I risk getting ill".*

rights attached (Goheen, 1992:402).

This symbolic value is clearly recognized by the local population and is manifested in the fierce opposition to any official appointment of Fuutankes as village chiefs:

"When our relatives started arriving in large numbers the local herders did all they could to try and chase us away, but they didn't succeed. The FuutankoBe people are very earnest and responsible people, we don't steal cattle etc. It's 13 years ago that the village was officially recognized. People didn't approve of it. But we have contributed a lot to the functionning of the borehole, so now people leave us alone. There are 11 different FuutankoBe subvillages around Djagueli but only 3 villages managed to become officially recognized. To be officially recognized, you have to pass by the Rural Council and the sousprefet. Barkedji is very well represented in the higher spheres of the state. Djibo Ka, Daouda Sow and Bira Sy Sow[24] all come from that area. When they are displeased they can make a lot of noise. But they couldn't do anything against our 3 villages because we had paid our taxes and everything was according to regulations. But they managed to get the Sousprefet mutated".
(FuutankoBeVillage chief of Fidjiti, borehole of Djagueli)

Although many Fuutankes have applied for recognition, only a few hold office. The rest have been rejected, officially on the basis of their villages being too small or located illegally within the borders of a gazetted forest (as above). In reality it is morelikelly to be the result of pressure from the local population who fear that official recognition will give the village more permanent rights and eventually enhance recognition of territorial claims also. Only in 3 cases have 'foreign' village chiefs gained official recognition. And even in those cases ,they still lack the final official approval from the Minister of Interior. This does not, however, prevent them from being involved in local decision- making on equal terms with the other village chiefs.

[24] All three influential FuutankoBe politicians with close family ties to the Arrondissement of Barkédji and the Département of Linguère. Djibo Ka (from Thiargny in the Barkédji arrondisement) has occupied several Ministries, lastly the central post of Minister of Interior from 1991. In 1993 he was removed fron this post as a result of the internal power struggles of the Socialist Party (PS). Daouda Sow, his uncle, was for numerous years President of the National Assembly. He was removed in 1989. Biram Sy Sow also occupied several central post within the state and party apparatus. The fall of Djibo Ka was highly lamented by the Fulani population of the Ferlo, who felt they no longer had someone to represent their interest in the highest political spheres.

THE IMPORTANCE OF BEING RECOGNIZED:

Sous-préfet of Barkedji, 1994:

"Normally it's the 'big' families that occupy the post of village chief. Normally there is no conflict or election. Villages are almost always made on basis of ethnicity. If they are mixed, it's because the foreigners make up a very small minority. It isn't common that a newcomer is appointed village chief, but if they make a well or a vaccination pen, or make a donation of some kind it's not unusual that they are appointed. If people are not organised in a village, the administration will not be aware of their existence if there are food aid packages or seeds to distribute. They have an interest in being recognized.

If a village is to be recognised, the rural council must make a petition to get acceptancet the name given to the village. This must be sent to the Prefet for approval. There are two village that are recognized here, Yiera Lopé [Yerims village] and Belel Thiabouli. But they are located within the gazetted forest. The problem with the FuutankoBe and their villages is not that they are FuutankoBe but that the villages are installed in the forest. That's not legal. Hence, the villages in the forest should not have been approved. But it's 15 years ago, so there isn't much to do about it."

Deputy of the Prefet of Matam 1995:

"Villages are created on government decree (arreté), whilst seasonal camps may be authorized by the sous-prefét, but the latter is only in case of conflict, to help them get installed'. Those villages that aren't characterized by fixed attachment are not recognized as villages: If an agglomeration is made up of rainy season camps it cannot be recognized and no village chief can be appointed.

To officialize a new village, one criteria is the size: it has to contain a minimum number of households. Then you have to contact the sous-prefet and the President of the Rural Council. The request must be handed over to the sous-prefet, and after having passed by the Prefet it is transmitted to the Governor. He will then send a note to the Ministry of Interior. Then a small survey will be made to check the information given. If all elements are present, the village may be recognized. At present all existing villages in the arrondissement of Ogo are offically recognized. There are people in the forest reserve who have found a location and a name, but they are not recognized by the administration. The FuutankoBe of Yonoféré for example have written a petition to get themselves recognized as villages, but we responded that they were not officially recognized.

People aren't always aware. We have had some cases where identity cards turned out to be invalid because the village indicated didn't exist. It's to the village chief that you have to pay your taxes. The newcomers are supposed to pay to the closest village chief. If they don't pay their taxes here they are not in acquiescence with the norms and with the norms and regulations. If they don't pay, they have less rights".

The explanations given by the authoritiues give several hints to the room of manoeuvre available to participants in local struggles over access to resources. As stressed by the deputy of the *Préfet* of Matam, foreign herders who do not pay their taxes in the area of settlement have less rights. This is used to justify both the action of the foreigners and those of the locals. But, what these rights actually include remains unclear and hence open for interpretations.

For the sous-préfet, it is the location of the new villages within the limits of the gazetted forests which provides the justification for questionning their legality. In contrast the deputy of the *Préfet* stresses the provisional character of their settlements. Other arguments invoked during interviews with rural councillors are the size of the agglomerations, that they don't pay their taxes, and that they are too mobile to constitute a village.

To create a village you must have a large family. If the village isn't large enough, it will not be recognized. For recognition you go the Rural Council. They will decide if your petition is accepted. Those who were rejected were not stable here. They went on transhumance to the Saluum all the time in search of pastures and they didn't even pay their taxes here.
(Former president of the Rural Council, Barkedji)

The reference by the *sousprefet* to the legal framework concerning the gazetted forests is problematic, as this legislation from 1965[25] primarily aimed at limiting the uncontrolled expansion of peanut cultivation which characterized this period by prohibiting cash crop production in certain areas. This law clearly stipulates the rights of local occupants to make use of pastures, tree products etc. as well as the right to cultivate annual crops if only the choice of site is approved by the forestry services. Rights of settlement are not explicitly stipulated.

The minimum size of a 'legilizable' settlements is another open question for which no official prescription exists[26]. With regards to the requirements of a candidate, the decree 72-636 of the Ministry of the Interior states that everybody over 21 years, who has principal residence in the village who has been listed regularly on the list of electorates is eligible. It is of course this paragraph that the deputy is refering to. Nonetheless, what is meant by principal residence in this area characterized by high levels of mobility among both first-comers and newcomers remains open to interpretation. And concerning the registration on the list of electorates, this goes back to the availability of a village chief to whom one can confide one's taxes. In the actual climate of

[25] Decret no. 65-078 du 10 février, 1965 portant code forestière

[26] Interview with the prefet of Linguere 1994. His own proposition is a minimum limit of 50 persons.

distrust, this can, as shown below, not be taken for granted[27]:

When I first arrived, the people of the neighbouring village of Belkagne, were very much against us, but they didn't really dare to do anything against us. Two years after we had settled, I started paying taxes in Barkédji. Several of my relatives had settled in the vicinities and we decided to form a village. This was authorized by the sous-préfet. But the local population complained and at the end, the sous-prefet was mutated. Several other FuutankoBe groups had also tried to become recognized, but it only worked out for me and for the village chief of the UrurBe Daka of Djagueli[28]. The reason why we were recognized was that we could show the receipts for having payed our taxes. It was very fortunate that I had kept my receipts for the councillors had hidden away the book into which payments were registred. (Yerim Sow, FuutankoBe village chief of Yera Lopé in the gazetted forest of Barkedji-Dodji).

The limited security of tax registration to a foreign village chief creates a paradoxical situation where newcomers are condemned for not paying taxes while taxpaying of newcomers, with all its officializing attributes, is indirectly constrained. But as observed by the sous-prefet of Ogo, the reverse is also true:

"If the FuutankoBe want to pay their taxes here they should go the the nearest village chief. But they do not want to. They want to make their own villages in the best pastures. They want to establish property rights." (Sous-prefet of Ogo 1994.)

Besides of uncovering the many refined ways in which rights and duties are distributed between fistcomers and newcomer, the intricacies surrounding the official establishment of new villages and village chiefs furthermore illustrates the difficult situations of the administrative authorities. On the one hand, the incorporation of at least some of the 'foreigner' village chiefs enhances the legitimacy of local decision-making. For this reason the existing three village chiefs are regularly involved in local decision-making routines in spite of the missing endorsement from the Ministry of Interior.

On the other hand, it seems that by omitting to proceed to a final approval, the local administration is keeping the decision open for later renegotiation. In this way the possibility is kept open for keeping them excluded or at least marginalised as was the case in Naoré where 70% of the population were represented by only two persons out of seven. Finally, proceeding towards

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[27] In a recent article Blundo gives numerous examples of how tax embezzlement is occurring not only at the level of the village chief but also among councillors and administrators (Blundo, 1998).

[28] The intervewee has forgotten the third officialized FuutankoBe village of Loumbi UruBe

full official recognition of these semi-officialized chiefs is, not the least in the highly politicized Barkedji arrondissement, a hazardous endeavour It is at least unlikely to tempt the *sous-préfet* who keeps the mutation of his predecessor (see above) fresh in his memory. On the contrary, the present situation of partial recognition enables the authorities to blame the actions of their predecessors, should the legality of the village chief be brought into question.

Securing control through private ownership.

Common for the FuutankoBe strategies mentioned above has been that they all aim at protecting resources hitherto governed as open acccess from attempts at reserving use rights to a more limited group. This does not, however, demonstrate any stronger propensity among FuutankoBe herders towards collectivity than what may be found among the firstcomer population. Indeed some of the most successful attempts to secure individual access to the range have come from the side of the newcomers. Among the most striking examples is the securing of individual property rights to part of the range through digging a private well. Such operations evidently involve considerable investment[29] and are therefore only within reach of a small minority of the richest FuutankoBe herders.

For natural reasons, the development of private wells is only taking place in the eastern part of the Ferlo where groundwater table is within accessible reach. In this area distance between the existing boreholes tends to be higher than in the rest of the area, making private investment in wells more attractive than would be the case elsewhere. In 3 cases such private wells have been localized by the author, but according to the *souspréfet* of Ogo, the number of Fuutanke herders who have obtained permission to dig private wells is far larger.

"The borehole is where everybody meets. It's also were the animals contract diseases. That's why people want to dig a well. They wan't to be able to water their animals in peace. In the 20 years where I have roamed around in the Southern Ferlo and in the Saluum, I have tried many times to get permission to sink a well. This is the first time that I have had a positive response. I sent a demand to the Rural Council and to the Sousprefet of Ourosogui and to the officers from the Ministry of Waterworks there. The Rural Council gave the authorisation. It was the people from the Forestry Services who located the place to sink the well. I spent a lot of money on getting the authorisation. Gallo Gato [an extremely rich FuutankoBe herder, who has been long time in the area] helped. Once you have an authorisation to sink a well you also have the authority over the pastures in a radius of 5 km. Then you are in peace. You will not be chased away, and no one will hamper your watering. You will be the one to decide who is permitted to use the well. If people

[29] According to the examples given, prices for a well in this area ranges from 600.000 to 1 mio CFA.

are thieves or in other ways doing wrong, you can tell them not to use the well. But you can't tell them to move out of the area. I think it will mainly my own family who will use the well.
(FuutankoBe well-'owner', Yonofere)

The digging of private wells is interesting for several counts. First of all, granting a permit for digging of private wells is officially subject to extensive bureaucratic procedures. They can be granted by the Prefet, after a technical approval by the Forestry Services, but are legal only after ratification by the Ministry of Interior.

In the present cases, the wealthy Fuutankes had, however, literally "purchased" the permission directly from the local director of the Forestry Services. These purchases were all the more spectacular as they involved land which was part of a national game reserve. In order to protect the habitat of the (indeed very sparse) wild animals and fowl, settlement in the game reserve is authorized only near already existing infrastructure i.e. the areas already covered by the existing boreholes. Nonetheless, the former Director of the reserve acting in collusion with the President of the rural council, has illicitly granted permission for digging of more than 30 wells, a situation which was now under scrutiny by the state administration[30]. Despite the correct procedure depicted by the FuutankoBe well-owner above, it is therefore not likely that his permission was obtained legally.

Secondly, it is interesting to note how the FuutankoBe herders, otherwise fierce defenders of free grazing rights, apparently adhere to restrictions where their own wells are concerned. According to herders, the advantages of such private wells are first of all, that they enable herders to settle in previously unused pastures, thereby limiting situations where transhumance might be necessary. Such advantages would easily be undermined if access to the well, as stipulated in the law, was held open for all herders. Asked whether such a well would not attract other users, one of the "fresh" owners responded that he had been granted not only rights of exclusivity to his private well, but also to pastures around. As mentioned above this may be interpreted as a clear tresspassing of both islamic and customary law, as well as of national jurisprudence:

"We have had to intervene at several wells to tell the village chiefs that it's illegal to prohibit access to water. This the case even if people have paid all the expenses related to the sinking themselves". Souspréfet of Ogo, 1994

Herders claims of property rights not only to the well itself but also the adjacent pastures is

[30] The President of the Rural Council was obviously not aware of the illicit character of his doings as he proudly boasted of having approved the creation of more than 20 wells in the course of his presidency', just as he stressed that no demand had ever been turned down.

therefore a revealing re-interpretation. The allegation (and the preciseness with which the extension of the rights was decribed) might well stem from a (very optimistic) reconstruction of an existing regulation prohibiting installation of fields within a distance of 1 kilometre around the wet seasonponds[31]. Hence it is yet an example of the changes in mentality or transgressions of moral codifications which, according, to Solway are likely to take place in a period of readjustment after a drought. For the appeal of such wells is not merely the need for more secure watering facilities. The attraction lies just as much in its attribution of being a **man-made** well, a feature which lends more readily to its being claimed as exclusive property. Indeed, the fact of being man-made is interpreted as providing the otherwise communal water sources with more extended rights in direction of private property.

Heterogeneity of interests and politization of resource management institutions.

The emerging claims of rights of exclusion towards strangers are, as could be seen above, no longer only forwarded by the settled indigenous population, but are increasingly shared by 'older' Fuutanke herders. Among these well-established newcomers, moral rules and old solidarities are transforming as part of their adaption to changing conditions and new opportunities. Increasingly they desire to restrict access of 'new' transhumants i.e. those of their relatives from the Fuuta who have recently rebuilt their herd sufficiently to take up a more pastoral way of living and who are ready to start copying on the production strategies of their prosperous kin. Much seems to indicate that these herders are developing into just as fierce defenders of the rights to exclude 'newcomers' from the local resource base, as were another group of relative newcomers, the FafaBe of Ranerou (see chapter 4).

The incidences decribed above are thus illustrative of the ways in which groups and solidarities tend to emerge or dissolve according to the opportunities available and of how ethnic' identities are under constant recreation. For while the labels 'FuutankoBe', 'egge-egge' or 'foreigner' contributed to give the drought-refugees of the Senegal River Valley a group identity they had not hitherto posesssed, the economic and political consolidation of part of these herders creates a new situation where these solidarities seems to evanesce and be replaced with other types of alliances with for example part of the settled local elite.

Nonetheless, this movement is not undirectionnal. For it was by stressing their situation as foreigners being deprived of their rights to move freely over the range that the basis of their present success was established. Once more firm' rights have been yielded through official

[31] The idea that control over a source of water also confers control over land within a certain radius of the well may also stem from the many mapping exercises and delimitation of resource-regimes and "pastoral units" (*unités pastorales*) in vogue among development projects (such as PAPEL and PRODAM) working along the same logic in the area.

establishment of villages and village chiefs or through enforcement of 'private-property-like' rights over land adjacent to private wells, other preoccupations than the free and open grazing and watering rights have tended to take over. But it is still by refering to their group identity as "those who contribute most to the running costs of the well" or as " those who will ensure the well-being of the animals by making the well function properly" that claims for representation in the well comittee and other similar institutions are made. (This explains the ambivalence towards their present numerical reinforcement expressed in many of statements made by old' FuutankoBes cited above). Furthermore the tendency for increased sedentarization is parallelled by a tendency towards increased mobility, a situation which goes for first-comers and newcomers alike. Hence, claims towards more exclusive rights are likely to continue to coexist with claims protecting the free and open access to pastoral resources.

So where Solway states that drought hastens and renders visible what has previously been latent processes, and (in a somewhat unilineal interpretation of the revelatory proces) stresses how vitality of reciprocal use entitlements is being undermined as a result of long-term structural changes towards commodification, privatization and class-formation (1994:492), the case of Senegal seems to point towards a far more ambiguous and fluid situation, where several trends are at work at the same time.

Whereas it is true that acquisition of land by individuals and commodification of formerly reciprocal arrangements are becoming more recurrent features, this does not confirm a general trend towards individualisation or privatization of hitherto communal resources. Apart maybe from the cases of 'spontaneous privatization' of the range surrounding the private wells[32], few of the cases point towards individual acquizition. Rather these trends are inter-twined with more 'reciprocal arrangements'. For as noted by Shipton and Goheen (see chapter 3) people use resources such as water and land not only for survival and enrichment but also to gain control over others and define personal and social identities.

The attempts by certain villagers to appropriate the funds of the well committee are for example not so much a matter of personal enrichment. For apart from constituting a source of profit they are first of all important sources of social and political legitimacy for those who control them. In this way they have become vital institutions in local political life and are used as such by the local elites.

As argued in chapter 3, a persons status and influence hinges on his ability to mobilize a following. Well committees, especially those whose incomes swell from transhumants' contributions obviously constitute a very important source of capital for clientelistic redistribution. For this

[32] But even here the owner ackowledged his inability to exclude others.

reason they have not developed into closed corporations acting to exclude others. Instead they have remained as arenas for individual accumulation and mobility - acting to expand the number of supporters.

This is not to say that maintenance of a clientele is financed overtly through the taxing of foreign herders (although this might be the case). Rather, as proposed by Blundo, control over such renumerative institutions puts the local bosses represented in the well committee in a situation where they cannot refuse their village clientele favours (such as tax exemption) as they are the basis of clientelistic exchange. In the same vein cases of financial borrowings are therefore also part of the explanation for the frequently empty accounts of the well-committees[33].

It is important to recognize that this monopolizing of (scarce) resources for political power is not only a matter of a divide between first-comers trying to retain control over their local resources against the economically more powerfull immigrants. First-comers do not speak with one voice, but are engaged in their own internal struggles over the available resoures. The attempts to maintain monopoly over the well committees are therefore also part of another logic related to the internal strives between political factions at local level.

As revealed maybe most clearly in the case of Naoré, disputes over the composition of the board of the well-committee are just as much struggles to gain control over the means to compensate the clients who have supported the winning faction,- and with the equally important addition made by Blundo (1998:2) of depriving the opponents of the benefits which they in turn could have derived from these resources. In this struggle, the rich new-comers are not only being used by the various local political factions. They also manage to play adeptly on the internal oppositions as a way of getting their share of the political power and resources which are redistributed. Hence, it is an example of the processes described by Kopytoff of how immigrants attempt to take over local political systems and remold them to their own purposes by skillfull political maneouvering.

With regards to the role of the administration, what characterized the situation was how deviation of funds was left strangely without any sanctions. This was the case both with the overtaxing or exclusion of foreigners and with the attempts of technically constraining watering. The administrative centres appear generally uninterested in the misappropriation of funds taking place at the local level and only intervene if protests becomes too overhwelming - or if violence is involved. This is the result partly of the submission of the administrative authorities to pressures stemming from the game of factions and from the political and religious notabilities which may be

[33] This is not only the case at local level. Also the national banks of Senegal have in several cases been close to bankrupt as enormous sums of money had been lent to political and religious notabilities with limited motivation for paying off their mortgages. (See also Boone, 1990:440).

mobilized in the course of struggles. But it is also because many of these actions not neccesarily imply collective reprobation. To a wide degree they are accepted as legitimate, although not uncontested, means in the general bid for political power. Involvment of the administrative authories is therefore no neutral act, but is immediately used in the political battle, as shown in Naoré.

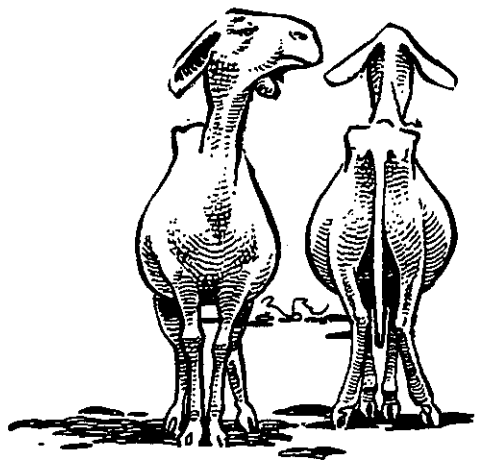
Transfer of competences and delegation of the responsibility for local resource management to local community has, as can be seen, not generated a political culture based on well-defined rule-making authorities anticipated by the Natural Resource Management Framework. Rather local institutions whether 'new' or 'traditional' have remained contingent and indeterminate in character, as a result of their embeddedness in specific political and economic structures. As shown above management of local resources cannot be regarded as an activity in isolation irespective of time and space. For precisely as proposed by the negotiated development approach (see chapter 3), the perception of both first-comers and newcomers of the object of negotiation changed in the course of the process. From being a matter of competition over access to water and pastures it turned into a strive centered primarily on control over the key resources for accumulation of political power (as expressed in the curiously pertinent quotation below). And in consequence of this also the social relationships between the negotiating parties were altered.

People don't want us here. If they could they would chase us away. We haven't even made any attempt to integrate the well-committee, or the Rural Council. We haven't even participated in the meetings among the FuutankoBe village chiefs, and we haven't contributed to the delegation of protest. Village Chief, Loumbi UrurBe, Barkedji april 1995.

Ensuing this cognition the need, expressed in chapter 3, of studying tactics and strategies, not merely the rules of the game cannot be sufficiently underscored.

Chapter 6.

Conclusion.



Chapter 6:

Conclusion:

The principal objective of the present research was to "analyse the changes in access to water and pastures triggered by post-drought population movements and "to study the changing configurations of power and obligations which have resulted". This was seen as part of a more general exploration of "the institutions and processes through which individual and groups gain access to, exploit and exercise control over resources and how these proceses interact with other social and political processes over time". To undertake this enquiry, a number of questions were raised concerning the ways in which migrant herders had adjusted their production systems to the opportunities offered in their new environment and how access to resources was negotiated with the first-comer population. Issues concerning the impact of migration on local institutional mechanisms and the role of the decentralisation process herein were also advanced in order to open a more general discussion on how these processes have shaped the arenas of resource competition.

Preliminary conditions for answering these questions were that the crisis scenario and the conception of herders as passive victims of the on-going deterioration of their fragile environment were abandoned. To capture the ingenuity and adaptive capacities of rural producers of the Ferlo a more open- ended framework was required. Such a framework was developed in chapter 2. Using this framework as a backdrop, it became clear that the situation of post-drought Ferlo is neither an absolute nor a structural decline in the number of animals in the pastoral areas and rather than a de-pastoralisation of household economies, development seems to favour the adoption of more specialized, mobile and labour intensive systems of production.As shown in chapter 4, the 'drought refugees' have, together with the indigenous population, been able to adjust to the new situation through conscious adaptation of a large number of different innovations (notably the tube and the donkey cart). This has enhanced the ability of both groups to cope with constraints and to take advantage of new opportunities.

One important explanation for this ability to adapt and persist is that eco-systems such as the Ferlo are unstable, i.e. they do not have as a prominent characteristica the ability to return to equilibrium after a temporary disturbance (or crisis). Rather frequent occurence of random perturbations such as drought, bush fires, etc. produce instability in the sense of large fluctuations (turbulence). Such production systems foster resilience and exhibit considerable capacity to absorb changes and disturbances.This in turn fosters flexible and opportunistic management systems where local producers seek to take maximum advantage of the resources available at any given moment. Hence, when analysing the fluid and porous social relations within such unpredictable and highly variable production systems, constancy of behaviour becomes less important than the persistence of relationships.

Persistance, in the sense of flexibility and the ability to manoeuvre economically as well as politically have been equally pertinent elements in the success story of the Fuutankobe herders and of their (more or less involuntary) hosts: the sedentarised agro-pastoral Fulanis. It is the ability to absorb changes and disturbances which explains the smooth incorporation of the large contingent of drought 'refugees' who moved into the area in the aftermath of droughts. This is in contrast to the linear view expressed in mainstream ecological thinking, which limits the perspective to either the decline or the re-establishment of balance or status quo.

This smooth integration of foreign herds and herders may partly be explained as a result of a generally flexible environment where both herders and animals are in a position to respond to externally driven change such as drought and other climatic hazards. In consequence of their restricted possibilities to influence or control localized fluctuation in range land productivity (as fodder is scarce due to deficient rains, not because of too many animals), herders in such non-equilibrium environments are seldom motivated to coordinate or restrict access to available resources. Rather pastoral strategies tend to be individalistic and opportunistic, geared towards seizure of opportunities and avoidance of hazards. Such opportunistic systems tend in general to favour open and unrestricted movement over the range. This openness is reproduced in local interpretations of 'Fulaniness' as hospitality towards foreigners and in the belief that it is shameful to deny other herders access to water and pastures.

Another part of the explanation should be found in the human capacities to persist, absorb and adapt to new conditions. As shown in chapters 4 and 5, individual economic and social strategies are far more flexible than is usually assumed. As exposed in multiple ways throughout my case material, people are often very alert when it comes to directing their investments and labour efforts towards the most profitable acitivity at any given time. This goes not only for the changes and disturbances brought about by the drought and the proliferation of irrigated agriculture in the Senegal River Valley.

As described in chapter 4, breaking with the crisis scenario and the idea of drought as an epochal change also implies recognition of a turbulent past in the course of which herders have been forced to adjust their productive capacities by making the best of their opportunities given at any point of time. Watershed events, such as the boosting of the groundnut economy in the beginning of this century or the borehole 'revolution' in the 1950s, provided for sustantial change in the production system and in social relations. In both cases it provided for constraints as well as new possibilities. Evidently the rapid proliferation of the groundnut economy contributed to an unprecedented encroachment on former grazing lands. But it also brought about a substantial boosting of cattle markets and hence of herders prosperity. It even triggered the venture of some Fulani herders into groundnut cultivation. Hence, no uni-lineal trend of deterioration can be extracted.

The introduction of the boreholes could likewise, as proposed by certain preservationists, be interpreted as undermining previously well-functionning management systems and consequently as the first step towards overgrazing. But here, focusing on resilience instead of degradation revealed how herders took advantage of the system by abandoning the large energy-consuming transhumance movements between the Senegal River Valley and the Ferlo. In this way a more 'pure' pastoral space was created, freed from the perpetual confrontations between farmers and herders. This did not, however, involve total sedentarisation or intensification as was expected by the planners. Instead a system of micro-nomadisation was adopted, whereby mobility was preserved as a crucial means to limit the risks and calamities related to climatic variation. In short, the drought-related migration acted not only to increase population and animal pressure in the area of reception, a process which according to the equilibrium framework would entail overgrazing and resource degradation. On the contrary the influx of drought refugees acted as the prime catalyst for technological innovation of pastoral production, a process which triggered off a whole series of other technological and institutional innovations.

Looking at persistence of relationships rather than at constancy of behaviour accentuates the adaptive and innovative aspects of drought-related migration. For herders the crisis was perceived just as much as persistence of relationsships as a rupture or an epochal change. Therefore adjustment of the production systems to the new conditions offered was a less insurmountable constraint for migrants than anticipated. Persistence of relationships in the context post-drought Ferlo includes for example the ability to move and exploit various resource regimes as well as the ability to shift between various productive strategies according to what proves most profitable for the moment. Also the adaption or unwrapping of the different technological and institutional innovations available can be understood as a expression of the creativeness of local entrepreneurs in ensuring the perseverance of relations. Far from the stagnant, timeless, autarchic and conservative pastoralist victim of his decaying production system, a different picture of pastoral producers emerges where production levels are a function not of a static level of sustainable production or carrying capacity but result from the capacity to innovate and'enlarge, so to speak, the commons from within'.

Also with regards to social relations and the negotiation of access to productive resources focusing on resilience and persistence of relations seems a fruitfull point of departure. Instead of the collective ecological concerns or relative poverty which - according to for example Runge - should motivate villagers independent of time and space to act in common, the examples from the Ferlo clearly show how interrelations between individuals and groups are governed more by individual interests and needs than by consideration for the weaker or by collective ecological concerns.

But in order to avoid falling into the trap of the rational herder as the lone hunter for benefits as

proposed in Hardin's allegory of the tragedy of the commons, it remains important to stress that such needs are not all reducible to rational economic calculations. The many bargainings, manipulations and counterattacks played out in connection with the well committees and the ongoing negotiations over access to pasture and water witness how many actions and operations fall short of any resemblence to economic rationality. The frequent and often prolonged inactivity of the boreholes due to simple fuel shortages or delayed minor repairs are provocked mainly by the unwillingness of herders to pay the taxes due or by the perpetual deviation of funds to other purposes. Together with the many cases of standstill prompted by struggles between different political factions or clan groups they nevertheless constitute considerable economic contraints for both first-comers and new-comers. Hence, explanation for their frequent occurrence cannot be found in rationalities related to pure economic gain. Rather the key to undertand this apparent mess must be found in the multiple and competing claims to legitimate use governing resource allocation in the Ferlo and elsewhere. These conflicting claims indicate that resource management institutions, far from the single purpose institutions anticipated by the Common Property framework, serve many purposes at the same time. Evidently the well committees are concerned not only with the operation and maintenance of the borehole and its equipment, but also with regulation of access to adjacent pastures, generation of support for the local political elites in control of the well committee through nurturing of the village clientele through favorable taxing arrangements, as well as a number of other purposes.These priorities may at certain moments overshadow the simple question of securing acessibility of water. Hence, it becomes impossible to get to grips with the functionings and malfunctionings of these local institutions if the entire political dimension is omitted.

As stressed in chapter 3, understanding how rights of access and control over resources change over time requires an understanding of how rules are made and remade through peoples' practices. This in turn requires an understanding and appreciation of power relations. For returning to the issue of constancy and flexibility, the case material from the Ferlo certainly shows that peoples' use of rules, norms and moral obligations far from being constant are re-interpreted continually as a function - among other things - of the prevailing power relations, the position of the individual actor involved and the resource priorities entailed.

Difference in resource priorities could for example be read out of the dissimilar attitudes towards transhumant herds experienced during the dry years of 1991 and 1993. Priorities in the eastern Ferlo, (at the *puits-forages*) where producers to a larger extent are settled agro-pastoralists, were directed primarily towards fabrication of technical constraints to watering in order to discourage large herd-owners from settling. In contrast to this, well committees in the western Ferlo, where the indigenous herding systems were more prone to copy the newly introduced herding strategies displayed more ambivalent interests in the newcomers. Here the newcomers were seen both as competitors, as sources of economic and political prosperity and as a numerical and political reinforcement of the pastoral population vis-à-vis the perpetual pressure from the *Mouride*

expansion (as decribed in the situation from Barkedji and Velingara).

During the period during which fieldwork was carried out resource priorities and power relations between Fuutankobe and indigenous herders have changed considerably as newcomers and certain layers of the indigenous population increased their wealth and influence. This had obvious repercusions both on the claims raised by the newcomers as well as on the rights granted them by the firstcomer population. For as prosperity increased and power relations altered, the objects of struggles tended to shift from pure safeguading of productive resources towards other types of resources more closely related to the generation of political power. As shown in the Naoré case, struggles around the well-committees moved away from being solely a question of ensuring proper watering and became just as much a struggle over political power and influence as a means to gain control over others and define personal and social identities.

Within this fluid situation the FuutankoBe herders are manoeuvring very adeptly to position themselves most favourably in the struggle over access and control with the natural resources in the pastoral area. Although they have been 'used' by the local political elites as part of a strategy to reinforce political positions, the FuutankoBes have managed to play very skillfully on the internal oppositions in order to get their share of the political power and resources which are being redistributed. Indeed, their present strategy must be worthy of the label of 'winning strategy' as proposed by Hesseling and Mathieu. Until now they have exhibited considerable intelligence and 'clairvoyance' in analyzing the content of ongoing transformations. In spite of their relatively weak institutional organization and not the least the geographic and political distance between the centres of power and their own remote encampments, they have managed at least to some extent to influence the rules of the game. The result can, among other things, be read out of the changing attitudes towards transhumant herders exhibited by government officials, notably those in central positions.

As shown thoughout the text, the apparently simple story of increased competition leading to greater claims for exclusivity does not lend itself to similarly simple conclusions. For although some first-comers are united in a clear interest in limiting competition on resources, there is no general interest in a total exclusion of foreigners. Likewise the foreign herders who generally display a considerable interest in maintaining free and open access to water and pastures have, on several occasions, shown a strong propensity towards limiting further influx of those members of their kin groups who have recently managed to built up a herd and who are on the verge of moving southwards and settle near their prosperous kin.

In the ongoing transformation of social and cultural systems a constant strive for adjustment and accommodation is taking place where the different social actors seek to manoeuvre themselves into those positions which are most advantageous to his or her objectives and seek to maximize the opportunities offered by the moment. Hence, a closer look at so-called communities and

interest groups, shows that multiple interests are at stake in the process of securing access and increasing control over the key resources of the area. In this struggle, defining who is and who is not a member of a community becomes the subject of considerable manipulations and reinterpretations just as redefinition of custom and invention of tradition are submitted to considerable political manouevring. In contratst to the structural functionalist view, myths, ritual and symbolic systems were perceived as interesting because of their regulatory role in ensuringthe balance of economic and social systems, the struggles over the meaning of key concepts such as who is and who is not a legitimate user, a legitimate taxpayer or -collector or a legitimate well-owner have, turned out to be essential parts of peoples' social manoeuvering. This is also true for other forms of invented traditions and symbolic rituals, which turn out to be crucial factors in the transformation of local systems of resource access and control.And it is these struggles and contradictions that run through the many political and social alliances from which local politics is fabricated.

But as shown in chapters 4 and 5 such adjustments and manoeuvrings may in a number of cases transgress existing moral standards and codes of proper conduct. The most prominent examples mentioned have been where indigenous herders have denied access to water to herders victims of drought, where rural councillors have charged foreign herders for settling on the range or when parts of the range has become subject to private appropriation by individual herders through the establishment privately dug wells. Obviously processes towards increasing degrees of exclusivity, commodification and even privatization were in motion before the droughts. But, as shown by Solway, perceived crisis, such as the droughts, overgrazing, desertification and the deficient precipitation in the early 1990's have with smaller or greater force provided the necessary licence for actors to extend them to previously unacceptable levels. Hence this period must be analysed as a series of events through which people actively have contested and revised key notions and representations. In this way they are part of a practical political struggle through which people defend their interests and advance claims. In this struggle a vast range of direct and indirect strategies are employed, involving both action and inaction, compliance and resistance, demonstrating the considerable skills and adeptness of both elites and subordinate groups to identify sources of power and leverage.

The opportunities actors take are, however, not entirely random, nor are they entirely predictable. They consist first of all in the maintenance of flexibility, in the diversification of options and in keeping opportunities open. As a result one sees no clearcut trend towards increasing privatization and consolidation of economic resources. Rather such attempts coexist alongside with efforts to consolidate the free and open access to resources because mobility, diversification of income sources and maintenance of diversified networks linger on as fundamental attributes of pastoral production strategies.

Returning to the research questions concerning the impact of migration on the local institutional mechanisms regulating access to natural resources and the effects of decentralisation, it seems that

whereas the direct effect of post-drought migration on resource management in the area has been considerable this is less the case with the decentralisation proces. In reality, the establishment of rural councils and the handing over of responsibility over the boreholes to the local populations provided relatively little change in local resource management practices. Instead, it was the swelling accounts of the well committees derived from the new and exhorbitant taxing policies which conferred a new and central role in local resource management to the hitherto relatively insignificant well committees.

This statement nevertheless requires some modifications. As shown in chapter 5 it was mainly through reference to the decentralisation policy that the indigenous population legitimated their rights to restrict access of 'foreign' herds to the boreholes and to the adjacent pastures. Such emerging claims of exclusivity have been nurtured not only in the rhetoric surrounding the rural councils and other decentralised management institutions, but also by various projects aiming at controlling overgrazing through the establishment of pastoral units[1] or fenced paddocks. As such it has entered into the discourses used by the various parties to legitimate and support claims of exclusive rights over particular resources or tracts of land.

Attributing responsibility for deficient local resource management on excessive state tutelage does not provide any fruiful entry for understanding the intricacies of local resource management. As shown in chapter 4 and 5 neither state control nor local authority have been capable of ensuring efficient management of the wells. Neither have they benn able to secure that attribution of land is carried out according to the requirements of the law. In reality many decisions regarding attribution of land or provisional restriction of access to watering troughs or wells are taken locally without consent or approval of those locally elected. Often the decisions are in direct contradiction with the norms and regulations governing the legal framework. But due to a combination of logistical deficiencies, the widespread politicization of resource management and the active role of local politicians in the rise and fall of local administrative officers, administrators trying to impose a new order are severely restricted in their room of manoeuvre. Independent initiatives seldom receive any backing from the central state administration and may even, as was the case with the ban on administrative involvement in the functions of the well-committee[2], be directly obstructed. Confronted with the overwhelming tasks assigned them, many administrators instead resort to what in chapter 5 was termed *institutional autism*. In this way they hope to avoid the fate of the sousprefet of Ogo who in the moment of interviewing was comtemplating demotion or at

[1] Pastoral production units (unités pastorales), where certain tracts of lands are reserved to a particular group of herders, have been attempted by several projects such as PDESO (Projet de Dévelopement de l'Elevage au Sénégal Oriental) PAPEL (Projet Appui a l'Elevage) and PRODAM (Projet de Développement Agricole de Matam),while fenced paddocks have been established in the Projet Senegalo Allemand de Reboisement de la Zone Nord of Vidou Thiengoli and in the Ranch de Doli.

[2]The letter (circulaire) from Jean Collin, discussed **p. ?**

least postponement of any prospect of transfer to a more 'civilized' posting.

As shown, the process of decentralisation has not given way to the anticipated development of a political culture based on accountability. Rather it has, as expressed by Blundo (1998) contributed to reinforce a system based on clientelistic redistribution. As demonstrated above, such a system hardly conveys efficent management or transparency in accounts. But it does provide a sort of functional adaptation to the rapidly changing management priorities and power relations of the local comunities through the creation of working compromises and alliances such as those emerging around the control over key resources and institutions. Such alliances based as they are on the expectations of reciprocal benefits among people of unequal status obviously facilitate privilege and have contributed to increase the strength of certain layers of the political and economic elite. Nonetheless they also contribute to create space for the more disadvantaged as power in such systems can always be contested and the redistributive features of the clientelistic arrangements to a certain extent inhibits identification of clear winners and losers.

Changing arenas of resource competition: Hitting a moving target.

The present dissertation has been concerned very much with 'noise': with the noise, impurities and disturbances which appeared during fieldwork, but which do not seem to fit within the broad framework of Natural Resource Management, the equilibrium view or the Common Property and Collective Action School. In the case of both the physical and the institutional environment within natural resource management the analysis revealed how disturbances, random events and turbulence tended to become so dominant that rather than treating these as exceptions, it became more fruitful to think of noise as the system itself.

Throughout the dissertation it proved impossible to understand the many often contradictory and apparently irrational practices carried out by groups or individuals in the Ferlo solely through the Common Property or New Institutional Economic lens. According to this view development is expected to be an ordered, simple, uni-directional and cumulative expansion of 'civilised behavior' and technological progress. Indeed much of the case material presented by the leading figures of this school of thought does reveal many of these characteristica, providing an apparently sensible backdrop to the issues of boundaries, mutual interests and communities bound together by a common culture etc. But how come then, that the case of Senegal, as shown above, provides such a mess of exeptions, of fluid and apparently contradictory relations?

An obvious reason for this semingly congruence between reality and theory is that much of the case material used by the leading theorists of the Common Property School stems from compilations of secondary material. Through such a process all the disturbing and contradictory trends encountered in the field are likely to have evaporated as the data is compartmentalised and made more uniform in the name of comparability. Information concerning more subtle and devious

transactions and arrangements has, intentionally or unintentionally been ignored: being too difficult to measure, predict or manage. The case material from the Ferlo, chaotic, incoherent and multidirectional as it was, nevertheless showed that it was precisely in the unexpected and the ambiguous, in the manipulated and distorted, that the explanations for the often contradictory political and social practices could be found.

At first sight most of the cases encountered during fieldwork did appear as relatively simple strives between a well-established group of first-comers trying to limit the influx of foreigners in order to safeguard the scarce fodder resources of the local community. This interpretation fitted splendidly with a classic within New Institutional Economics, the vision of the free rider who exploits the resources of a given locality without contributing to the well-being of the community. Nonetheless, one did not have to investigate much further into the matter before a much more complicated picture was disclosed. For when looking at the conflicts over a longer time span it turned out that what was maybe the most important common denominator was the way in which not only the object of the struggle but also the social composition of the various claimant groups changed in the course of the operation. Where conflicts in the immediate aftermaths of the drought were related primarily to competition over access to common pastures and water sources, this shifted in the course of struggle to be increasingly directed towards the control over these assets as part of a larger bid for political power and private gain.

Likewise the simple and mutually exclusive categories of group identities and -interests between firstcomers and newcomers tended to evaporate in the course of fieldwork. The presumably fixed analytical dichotomies, which structured my initial hypoteses (between the politically well-consolidated sedentary agro-pastoralists and the marginalised and individualistic foreigners, between those settled in comfortable distance of the wells and the newcomers avoiding conflicts by settling far away in the bush, and even between rich and poor) tended to dwindle away as the process of post-drought rehabilitation proceeded. As the objects of struggle as well as the meaning of certain strategies have shifted in the process of adaptation it proved impossible to understand the process of post-drought rehabilitation in the Ferloonly by means of dichotomies or mutually exclusive categories such as before /after, crisis/recovery, turmoil/order, degradation/rehabilitation, private/common, insider/outsider, newcomer/firstcomer and even rich and poor.

Indeed the dissertation is full of examples of how meaning and value attributed to certain objects or strategies have transformed in the course of time. The strategy of settling in the bush which, for example originally had character of a largely defensive strategy (i.e. the choreography of movement discussed in chapter 2), shifted within a relatively short time span into a 'winners' strategy through which it was the foreign herd owners who had positioned themselves most favorably in the on-going competion over fodder resources. Hence far from the first impressions of marginalisation, settling in the bush had transmuted into one of the prime markers of the successful strategy carried out by the drought refugees.

Similarly, the opportunities provided by the new watering techniques, implied that the 'value' and importance attributed to pastures located further away from the boreholes changed, prompting also previously settled herders to move out into the bush. In some cases, this even entailed a 'domestication' of previously 'under-utilised'[3] land as grazing within formerly too bushy areas contributed to improve the palatability of species composition and as in the case of Loumbi UrurBe, keep away wild animals (and Mouride farmers), making the area more attractive to the 'indigenous' population. And where it initially was access to the presumably scarce fodder resources that were at play, the objects of struggle shifted. As the herds had recovered from the most immidiate effects of the drought they became more related to control over key institutions andin the course of time it became the political and financial gains that these institutions were likely to generate that were at the heart of the struggles.

Finally, the successful rehabilitation in itself provided an opportunity for the drought 'victims' to transgress their previous status as politically marginalised. Through skillful manipulation and negotiation with political contacts (in the broadest sense) they have managed simultaneously to reinvigorate or recreate hitherto unacknowledged institutions in the area of departure (such as the *Maouloud*, the local *marabouts* and their religious networks, the *ardo's* and the association of pastoralists to mention but a few) and to establish new alliances and platforms for bargaining in the area of reception. In this process new interest groups and alliances have been moulded across previous divides just as certain former communities have lost importance.

Hence, at the end of the analysis both the arenas on which the struggles were played out, the claims expressed as well as the social actors staging the scene, had transformed and have merged into new and unexpected combinations.

The conclusion drawn must therefore be that the success story of the post-drought migration of FuutakoBe herders was largely unpredictable. Hence, it is very likely that the situation described here is particular for Senegal, and therefore does not lend itself readily to generalisations. Nonetheless, the case does point to the need, expressed by Salzman (1995:163), of adopting a pluralist perspective which stresses multi-causality and which focuses upon the interaction of many different factors as the processes generating the patterns of human custom and action that we wish to understand. Although human adaptation to an area takes account of the environmental conditions, it is important to stress that there are many different kinds of adaptation and many liable outcomes.

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[3]The term under-utilised (sous-pâturer) was initially used by my colleagues at CSE in Dakar to describe the situation in years of abundant precipitation where biomass production was far beyond animal pressure (Prévost 1990). As mentioned in chapter 4, also the staff from the GTZ project in Vidou Thiengoli described situations of under-utilised pastures causing constraints to the germination of high qualitity fodder species.

But returning to the questions of politics raised in the introduction, it seems clear that it is impossible to understand local management of water and pastures independent of the political and economic context within which it is set. Due to the economic, human and political resources that may be generated from the process of post-drought adjustment, the struggles ensuing over access to and control over resources inevitably become part of a wider struggle to get new objects and new rules under local control. And therefore even small conflicts over local resources tend to become politiced as they get mixed with struggles over larger political goals. Such fluid, contradictory and politicized environments are not ideal for fostering either equitable and sustainable development. Nevertheless, omitting to address the political environment as such, and directing intervention towards imagined homogeneous communities driven by mutual agreement about 'long term sustainable' production goals and maintenance of the equilibrium (i.e. status quo) of the related is likely to fuel further social differentiation and increase social conflicts.

Bibliography.

Bibliography:

Abrams, Philip, 1982: *"Historical Sociology"* Ithaca, New York. p. 1-18, 190-227.

Adam, J.,1915:" Le Djoloff et le Ferlo". *Annales de Geographie* 132 p. 420-429.

Adams, Martin, 1982: The Baggara Problem , Attempts at modern change in Southern Darfur and Southern Kordofan (Sudan) *Development and Change* vol. 13 p. 259-289.

Allisoutin, Rosnert Ludovic, 1997: " Pond Management in the Podor department, Senegal" *Issue Paper* no. 72. International Institute for Environment and Development (IIED), London, 13 p.

Amanor, K.S., 1995: "Dynamics of Herd Structure and Herding Strategies in West Africa: A study of Market Integration and Ecological Adaptation." *Africa* vol. 65 no. 3. Pp.351-393.

Ammitzbøl, K., 1997: "Decentralisering af Naturressourceforvaltning - en arena for institutionel synergi". Speciale Internationale Udviklingsstudier, Roskilde Universitetscenter. 141 p.

Anderson, David M., 1993: "Cow Power: livestock and the Pastoralist in Africa". *Africa Affairs* nr. 1 1993. P. 121-133.

Aubreville, A., 1949: *"Climats, forêts et desertification de l'Afrique Tropicale"*, Sociéteé d'Edition Géograpiques, Maritimes et Coloniales, Paris

Audiger, Jeanne 1961: "Les Oulof du Bas-Ferlo" *Les Cahiers d'Outre-Mer,* No. 54, p. 157-181.

Ba, Oumar, 1975: "Les Peul du Diolof au XIXe siècle", *Bulletin IFAN* T.37, série B no. 1.

Ba, Cheick, 1986: *"Les Peul du Senegal, Etude Géographique"*, Dakar. 385 p.

Barral, Henri, 1982:*"Le Ferlo des Forages; Gestion ancienne et actuelle de l'espace pastoral"* ORSTOM, Dakar. 85p.

Barrows R. and Roth M., 1989: *"Land Tenure and Investment in African Agriculture: Theory and Evidence"*, Land Tenure Center, University of Wisconsin-Madison.

Barth, Fredrik, 1973: "A general perspective on nomad-sedentary elations in the Middle East", in Nelson, C.: *The Desert and the Sown, Nomads in a wider Society.* Institute of International Studies, University of California, Berkeley.

Barth, Fredrik, 1969:" Introduction" in Barth (ed): *Ethnic Groups and Boundaries, The Social Organization of Cultural Difference.* Oslo, London. pp9-38.

Baxter,P.T.W., 1991: Introduction in Baxter,P.T.W*: When the Grass is Gone; Development Intervention in Africamn Arid Lands"*. Seminar Proceedings no. 25: Scandinavian Institute of African Studies, Uppsala.

Baxter,P.T.W and R. Hogg., 1990: *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development,* Manchester. University of Manchester press.

Behnke, R.H., 1985: "Open Range Management and Property Rights in Pastoral Africa: A case of Spontaneous Range Enclosure in South Darfur, Sudan". ODI Pastoral Development Network Paper 20f., London.

Behnke, R.H., 1992 "New directions in African Range Management Policy" *ODI Pastoral Development Network Paper* 32c, March 1992.

Behnke, R.H. and I. Scoones, 1993: "Rethinking Range Ecology; Implications for Range land Management in

Africa" in Scoones et al.: *"Range Ecology at Disequilibrium; New Models of Natural Variability and Pastoral Adaptation in African Savannas"* ODI, IIED Commonwealth Secretariat, London. pp. 1-31.

Benoit, M., 1988: La Lisière du Kooya; Espaces pastoral et paysages dans le Nord du Sénégal (Ferlo), *L'Espace Geographique* no.2.pp. 95-108.

Berkes and Farvar, 1989: "Introduction and Overview" in: Berkes (ed)1989: *"Common Property Resources: Ecology and Community Based Sustainable Development"* London. pp.1-18.

Bernard, Claire, 1993: "Les débuts de la politique de reboisement dans la Vallée du Fleuve Sénégal (1920-1945)" *Revue francaise d'histoire d'outre-mer.* T. LXXX no.298, pp49-82.

Berod-Inard, Thierry and Di-Meo, Guy, 1985: " Crise du nomadisme pastoral et modernisation des transport dans le Sahel sènegalais du Ferlo"Travaux de l'Institut de Geographie de Reims 63-64, pp. 95-112.

Berry, Sara, 1994: "Resouce Access and Management as Historical Processes" in Markussen and Lund (ed) "Access, Control and Management of Natural Resources in Sub-Saharan Africa - methodological considerations" *Occasional Paper* no. 13 IDS.,Roskilde.

Berry, Sara, 1993: *No condition is permanent; The social dynamics of Agrarian Change in Sub-Saharan Africa,* University of Wisconsin Press, Madison, USA.

Berry, S., 1988: "Concentration without privatization? Some consequences of changing patterns of rural land control in Africa" in Downs and Reyna (eds.), *Land and society in contemporary Africa,* University Press of New England.

Berry, Sara, 1989: "Social Institutions, and access to resources" *Africa* no. 59 no. 1. pp. 41-56.

Biot,Y, P.M. Blaikie, C. Jackson and R. Palmer-Jones, 1995: "Rethinking Research on Land Degradation in Developing Countries" *World Bank Discusion Paper* 298, World Bank Washington DC. 71 p.

Bloch, P.1986: *Land Issues in River Bassin Development in Sub-Saharan Africa,* Land Tenure Center, Madison, Wisconsin.

Bloch, P., 1989: "Land Issues in the Senegal River Valley: Report on a reconnaissance trip", mimeo. December 1988." Land Tenure Center, University of Wisconsin-Madison.

Bloch, P., 1990: *An egalitarian Development Project in a stratified Society: Who ends up with the Land?,* Land Tenure Center, University of Wisconsin-Madison.

Blundo, Giorgio, 1995a: "Les courtiers de développement en milieu rural sénégalais". *Cahiers d'Etudes africaines* 137,XXXV-1. pp.73-99.

Blundo, Giorgio, 1995b: "Gerer les conflits fonciers au Sénégal: Le rôle de l'administration locale dans le sud-est du Bassin Arachidier". Unpublished Draft, Institut d'Etudes de Développement, Université Catolique de Louvain. 18 p.

Blundo, Giorgio, 1998: "Decentralisation, participation and corruption in Senegal". Paper presented at the 14th International Congress of Anthropology and Ethnological Science, Williamsburg, Virginia.

Blundo, Giorgio and Jean Pierre Jacob et al., 1997: "Socioanthropologie de la décentralisation en milieu rural africain; bibliographie sélective et commentée", *Itineraires, Notes et Travaux* no. 49, IUED, Genève.

Bonfiglioli, A.M. and Yiero Doro Diallo, 1988: "Kisal, production et survie au Ferlo (Sénégal) Dakar": Rapport préliminaire préparé pour OXFAM.

Bonte, Pierre, 1993: "Terres collectives , Droits Coutumiers et Conflits Fonciers", in Moorehead and Lane (eds): Rapport de l'Atelier Sous-Regional sur Le Foncier Pastoral et le Developpement au Sahel, Nouakchott 1993. Annex

II. London, International Institute for Environment and Development (IIED).

Boone, Catherine, 1990: "The Making of a Rentier Class; Wealth and Accumulation and Political Control in Senegal", *The Journal of Development Studies*, vol. 26,no. 3, April 1990pp. 424-449.

Boserup, Ester, 1983:"The Impact of Scarcity and Plenty on Development" in: Rothberg, R.I. and Rabb, T.K., *Hunger and History* pp. 185-209.

Boserup, Ester, 1965: *The Conditions for Agricultural Growth*, London.125 p.

Bourdieu,P., 1977 :*Outline of a theory of practice*, Cambridge University Press. 248 p.

Boutillier, J.L., 1982: "L'Aménagement de fleuve Sénégal et ses implications foncières", in: Le Bris E, Le Roy et Leimdorfer (eds.): *Enjeux fonciers en Afrique Noire*.Paris. Pp.301-308.

Bovill, E.W., 1921 "The encroachment of the Sahara on the Sudan" *African Affairs, Journal of the African Society*, vol LXXX Juli 1921.

Breman, H. and C.T. de Wit : Rangeland Productivity and exploitation in the Sahel", *Science* nr. 221 p. 1341-1347.

Breman et al.,1985: "Analyse des conditions de l'élevage et propositions de politiques et de programmes, Burkina Faso". Etude preparée pour le Club du Sahel et le CILSS.

Brink, Roger van der, D.W Bromley and J-P. Chavas, 1995: "The economics of Cain and Abel:Agropastoral Property Rights in the Sahel". *Journal of Development Studies* vol 31, no.3 pp.373-399.

Bromley, D.W and M. Cernea, 1989: "The Management of Common Property, some conceptual and operational falacies". *World Bank Discussion Paper* 57. 66 p.

Bromley, D.W., 1972: The Commons, Property and the Common Property Regimes" in Bromley (ed): *Making the Commons Work, Theory, Practice and Policy*. San Fransisco pp.3-15.

Brown, Lester and E.P. Eckholm, 1974: *By Bread alone*, New York.

Brox, Ottar, 1990: "The Common Property Theory: Epistemological Status and Analytical Utility". *Human Organization* vol. 49, no. 3. pp. 227-235.

Bruce, J., 1990: *Community Forestry, Rapid Rural Apraisal of Tree and Land Tenure*. FAO, Rome.

Bruce, J. 1988b: "Do Indigenous Tenure Systems Constrain Agricultural Development?" mimeo, Land Tenure Center, University of Wisconsin-Madison.

Bruce, J. 1988a: "A Perspective on Indigenous Land Tenure Systems and Land Concentration", in Downs and Reyna (eds.): *Land and society in contemporary Africa*, University Press of New England.

Bruijn, Mirjam de and Hans van Dijk, 1994: 'Drought and Coping Strategies in FulBe society in the Hayre (Central Mali) : A Historical Perspective'. *Cahiers d'Etudes Africaines* 133-135 XXXIV- 1-3 pp. 85-108.

Bruijn, Mirjam de and Hans van Dijk 1995: *Arid Ways: Cultural Understandings of Insecurity in FulBe Society, Central Mali,* Thela Publishers, Amsterdam, 1-32, pp. 497-506.

Bruijn, Mirjam de and Hans van Dijk, 1992: 'Changing Fulani Society and Fulani Security'in F. Von Benda-Beckmann and M. Van der Velde (eds): *Law as a resource in Agrarian Struggles*. Wageningse Sociologische Studies no.33. Wageningen Agricultural University pp. 45-59.

Carl Bro International, 1988: A Livestock Development Study in the Sahel to Assess the Potential Role of Livestock

in Integrated Farming Systems, Country Report, Senegal.

Carney, J, And M. Watts, 1990: "Manufacturing Dissent: Work, Gender and the Politics of Meaning in a Peasant Society", *Africa* Vol. 60, no. 2. Pp. 207-241.

Caverivière, M. and Debene M., 1988: *"Le droit foncier sénégalais"*, Mondes en devenir, Berger-Levrault, Paris.

Caverivière, M. 1991: "Problematique foncière et amenagement de l'espace rural; le cas du Sénégal", Atelier sur les nouvelles approches de la planification regionale, Nations Unies, Dakar 4-8 mars 1991.

Centre de Suivi Ecologique (CSE) 1992: "Estimation des effectifs du bétail par vol systématique de reconnaissance dans la moitié nord du Sénégal. Rapport de campagne". Document NT 92.

Centre de Suivi Ecologique (CSE), 1991: "Etude de la distribution spatiale et des mouvements de bétail par enquêtes aériennes; 1989-90". Document NT 91-02.

Cohen, A.P.,1985 *The Symbolic construction of society*. London. 125 p.

Colvin, L.G., 1982: "Land Tenure and Irrigated Agriculture in the Senegal River Basin", USAID and OMVS Design Team, Dakar.

Comaroff, J. and Comaroff, J., 1992: "Goodly Beasts, Beastly Goods" in Comaroff, J. and Comaroff, J.: *Ethnography and the Historical Imagination*. Westview Press, Boulder, Colorado.

Coppock, D.L., 1993:"Vegetation and Pastoral Dynamics in the Southern Ethiopian Rangelands: Implications for Theory and Management. in Behnke et al.: *Range Range Ecology at Disequilibrium*, London, Overseas Development Institute. pp 42-62.

Croll, Elizabeth and David Parkin, 1992: "Anthropology, the Environment and Development" in Elizabeth Croll and David Parkin: *Bush base: Forest Farm*, Routledge London, pp. 3-11.

Cruise O'Brien, Donal, 1996: "The Senegalese Exception" Review article, *Africa* 66 (3) pp.458-464.

Cruise O'Brien, Donal, 1975: *Saints and Politicians: Essay in the Organization of Senegalese Peasant Society*, Cambridge, Cambridge University Press.211 p.

Cruise O'Brien, Donal, 1992: "Le contrat social sénégalais à l'epreuve". *Politique Africaine* no. 45 p. 9-20.

Cyriathy-Wanthrup S. and R.C. Bishop, 1975 :"Common Property' as a concept in Natural Resources Policy" *Natural Resources Journal* 1975.

Dahl, Gudrun, 1979: *Suffering Grass, Subsistence and Society of Waso Borana*. Stockholm Studies in Social Anthropology.

Dahl, G and A. Hjort, 1979: *Having Herds; Pastoral Herd Growth and Household Economy*. Stockholm Studies in Social Anthropology vol 2.

Davis, Lucy, 1995: 'Opening Political Space in Cameroun: the Ambiguous Response of the Mbororo'. *Review of African Political Economy* no. 64. Pp.213-228.

Degnbol, T. 1996: "The terroir approach to natural resource management: panacea or phantom: the malian experience" Unpublished Paper, IDS Roskilde.

Demsetz,H., 1967: "Towards a Theory of Property Rights" *American Economic Review* Vol.57, pp.347-359.

Dia, Ibrahima, 1988: "Socio-logiques et écologie dans la problématique des aménagements hydro-agricoles dans la

moyenne Vallée du fleuve Sénégal (Rive Gauche)." Thèse de doctorat de troisième cycle. Institut des Sciences de l'Environnement, Université Cheick Anta Diop, Dakar.

Dia, Fatimata, 1995: "Place de l'embouche paysanne dans les systemes d'élevage traditionnel au centre-est du Basin Arachidier". Communication du Seminaire-Atelier sur la production de Viande en Afrique Sub-Saharienne, 13-17 Mars 1995 à Saly Portudal, Sénégal, multigr.

Diallo, O., 1991 :"Suivi des systemes de production dans le Ferlo Nord", rapport preliminaire, CSE, Dakar.

Diallo, O., A. Diouf, N.P. Hanan, A. Ndiaye and Y. Prévost, 1991:" AVHRR monitoring of Savanna primary production in Senegal, West Africa 1987-1988." International Journal of Remote Sensing Vol. 12 no. 6, pp.1259-1279.

Diawara, Ibrahima 1984:" Evolution de l'Elevage bovin dans la zone sylvopastorale du Senegal 1911-1980, Ecole Interétat des Sciences et Medicines Veterinaires,Thèse, Doc.Vet.Université de Dakar, Senegal. 134 p.

Dietz, Ton, 1993:"The State, The Market and the Decline of Pastoralism: Challenging some Myths, with Evidence from Western Pokot in Kenya/Uganda" in Markakis, J (ed.) *Conflict and the Decline of Pastoralism in the Horn of Africa*, Macmillan PRESS , London. Pp.83-99.

Diop, Amadou Tamsir, 1989: "L'aménagement et la gestion des ressources sylvo-pastorales au nord du Sénégal, le cas de l'aire d'influence du forage de Tatki." Thèse de doctorat du 3ème cycle en sciences d'environnement, Institut des Sciences de l'Environnement (ISE), Université Cheick Anta Diop, Dakar.

Diop, Amadou Tamsir, 1991(a): "La gestion des parcours de l'aire d'influence du forage de Tatki. Relations entre données de végétation, taux d'exploitation et transhumance" ISRA/LNERV, Dakar-Hann.

Diop, Amadou Tamsir, 1991(b): "L'amélioration du système de transport de l'eau en zone sylvo-pastorale du Sénégal: l'utilisation d'un nouveau type de charette", Note préliminaire ISRA/LNERV Dakar-Hann.

Diop, Amadou Tamsir, 1987: "Les ressources de l'aire pastorale de Tatki: Inventaire et étude du mode d'exploitation, proposition de plan d'aménagement et de gestion rationelle". Dakar-Hann, ISRA/LNERV

Diop, Momar Coumba et Mamadou Diouf, 1990: *Le Sénégal sous Abdou Diouf.* Editions Karthala, Paris 436 p.

Diop, Mamadou Coumba(ed), 1992: *Sénégal, Trajectoire d'un Etat.* Dakar.

Diop, A-B., 1968: "La tenure foncière en milieu rural wolof (Sénégal): Historique et Actualité. *Notes Africaines* n°118, avril 1968.

Diouf, Makhtar, 1994: *Sénégal, Les ethnies et la Nation.* UNRISD/ Forum du Tier Monde, Paris.

Dupire, Marguerite, 1957: " Les Forages dans l'Economie Peuhle" in: Gouvernement du Sénégal, Services des Eaux et Forëts, Inspection Forestière du Fleuve: *Elements d'une Politique Sylvo-Pastorale au Sahel Senegalais.* Dakar, Sénégal. Fascicules 1-7. Pp. 19-24.

Dupire, Marguerite, 1970: *Organisation Sociale des Peul*, Paris. pp 250-287, 515-583.

Dyson-Hudson N.& JT McCabe, 1983: "Water resources and livestock movements in South Turkana,Kenya" *Nomadic Peoples* 14:41-46.

Dyson-Hudson N. 1985: "Pastoral Production Systems and Livestock Development Projects: An East African Perspective" in M.M. Cernea (ed), *Putting People First.* Oxford: Oxford University Press.

Ellis, J. 1995: "Climate Variability and Complex Ecosystem Dynamics:Implications for Pastoral Development" in Scoones (ed): *Living with Uncertainty:New Directions in Pastoral Development in Africa.* London.

Ellis, J. Coughenour, M.B. and Swift D.M.1993: "Climate Variability, Ecosystem Stability and the Implications for Range and Livestock Development" in Behnke et al. *Range Ecology at Disequilibrium; New Models of Natural Variability and Pastoral Adaptation in African Savannas*, London

Ellis, J. Coughenour, M.B. and Swift D.M.1991: " Climate Variability, Ecosystem Stability and the Implications for Range and Livestock Development" in: New Concepts in International Rangelands Development; Theories and Applications", Proceedings from the 1991 International Rangeland Development Symposium, Society For Range Management. Logan, Utah.

Engelhard, Ph.et al., 1986: *Les enjeux de l'après-barrage*, ENDA, Dakar.

Fairhead, J. and M. Leach, 1996.: *Misreading the Arican Landscape. Society and Ecology in a Forest-Savanna Mosaic*" Cambridge University Press pp.1-24, 279-296.

Fatton, R.Jr., 1986: "Clientelism and Politics in Senegal" in *African Studies Review* 29 no. 1, December 1986.

Faye, A. and Marks M., 1990: "Rapport de la cinquième campagne d'enqêtes aériennes: décompte du bétail", Document du CSE, Dakar.

Faye, A. et Malcolm Marks, 1992: "Aerial Monitoring of Sahelian Livestock and Determination of Rangeland Pressure. Dakar, Centre de Suivi Ecologique (CSE).

Faye, Malick, 1995: "Gestion des ressources pastorales au Ferlo. Quelles orientations".Communication du Seminaire-Atelier sur la production de Viande en Afrique Sub-Saharienne, 13-17 Mars 1995 a Saly Portudal, Sénégal, multigr.

Feder and Feeny, 1991: "Land Tenure and Property Rights:Theory and Implications for Development Policy". *The World Bank Economic Review*, vol. 5 no. 1,p. 135-153.

Feeny, David, Fikret Berkes, Bonnie B. McCay,.James A Acheson The Tragedy of the commons: Twenty-Two Years Later" *Human Ecology*, Vol. 18 no.1 pp.1-19.

Feeny, David, 1992: "Where do we go from here; Implications for a research agenda" in: Bromley (ed): *Making the Commons Work, Theory, Practice and Policy*, San Fransisco. Pp. 267-290.

Feeny, David, Fikret Berkes,Bonnie Mc Cay and James Acheson, 1990: "The Tragedy of the Commons Twenty Two Years later". *Human Ecology* vol. 18, no. 1. 1990. Pp.1-19.

Ferguson, James, 1990: *The anti-politics machine; Development, depolitization and bureaucratic power in Lesotho*, University of Minnesota Press.

Fjellman S.M. and Miriam Goheen, 1984: "A prince by any other Name? Identity and Politics in Highland Cameroon", American Ethnologist, *The American Anthropological Association* Vol 11. No.3 pp. 473-486.

Fortmann, Louise, 1995: "Talking claims: Discursive Strategies in Contesting Property". *World Development* vol.23 no.6 pp.1053-1063.

Fratkin, E., 1997:"Pastoralism: Governance and Development Issues". *Annual Review of Anthropology* 26 pp. 235-61.

Freudenberger, Karen Schoonmaker 1991: "The Incongeneous Destruction of a Forest Reserve: The case of Mbege, Senegal." *IIED Issues Paper.*

Freudenberger, M.S. 1991: "Losing, Protecting and Regenerating the Gum Arabic Tree: Constraints to the Emergence of Local Level Resopurce Management in Northern Senegal" Draft, Land Tenure Center, University of Wisconsin, Madison.43 p.

Freudenberger, M.S., 1992 "The great Gum Gamble: A Planning Pewrspective on Environmental Change in Northern Senegal". Unpublished Ph.D. Dissertation, University of California, Los Angeles. 469 p.

Freudenberger, Mark Schoonmaker, 1992: "Le règlement des conflits en matière de gestion des terres" in "La gestion des ressources naturelles par les collectivites locales" Actes du séminaire organisé a l'Université de Saint Louis du 3 au 5 novembre 1992.

Freudenberger, M.S. and P.Mathieu, 1993: "The Question of the Commons in the Sahel" Preeliminary Version Land Tenure Center, University of Wisconsin-Madison. 39 p.

Gallais, Jean, 1972a: "Les sociétés pastorales ouest-africaines face au développement", *Cahiers d'Etudes Africaines* 12,3. Paris.

Gallais, Jean, 1972b: "Essai sur la situation actuelle des relations entre pasteurs et paysans dans le Sahel ouest-africain", *Etude de Géographie Tropicale offerte a Pierre Gourou*, Paris.

Gellar, Sheldon, 1995:" State Tutelage vs. Self-Governance: The Rhethoric and Reality of Decentralization in Senegal" in Wunsch J.S. and D. Olowu: *The Failure of the Centralized State; Institutions and Self- Governance in Africa.*

Gérard, Jerome, 1994: Un parti vert au Sénégal: Une participation militante. *Politique Africaine* n0.53. Pp.75-89.

Geschiere, Peter, 1984: 'Segmentary Societies and the Authority of the State - Problems in Implementing Rural Development in the Maka Villages of Southeastern Cameroun' *Sociologia Ruralis* vol. XXIV (1) p. 10-29.

Gibbs, C.J.N. and D.W. Bromley, 1989: "Institutional Arrangements for Management of rural Resources: Common Property Regimes." in Berkes (ed) *Common Peoperty Resources; Ecology and Community Based Sustainable Development.*Belhaven Publishers, London pp.22-33.

Gilles, J.L. and Jamtgaard, 1981: "Overgrazing in pastoral areas: the commons reconsidered" *Sociologia Ruralis* 21(2) 129-141.

Glantz, Michael H., 1977: "The U.N. and Desertification: Dealing with a Global Problem" in Glantz (ed.): *Desertification; Environmental Degradation in and around Arid Lands*, Boulder, Colorado.

Godwin R.K.and Shepard W.B., 1979 :"Forcing Squares, trianmgles and ellipses into a circular Paradigm: The use of the commons dilemma in examining the allocation of common resoources" *The Western Political Quarterly*, Salt Lake City, Utah, 1979, Vol.32 No. 3 p. 265-77.

Goheen, Mitzi and Parker Shipton, 1992: "Introduction. Understanding African Landholding: Power, Wealth and Meaning". *Africa* Vol 62,no.3 pp.307-327.

Goheen, Mitzi, 1992: "Chiefs, Subchiefs and Local Control: Negotiations over Land, Struggles over Meaning" *Africa* Vol 62,no.3 pp389-412

Goody, Jack, 1971: *Technology, Transition and the State in Africa*, London.85 p.

Gore, C.,1993: "Entitlement Relations and 'Unruly' Social Practices: A Comment on the Work of Amartya Sen". The Journal of Development Studies, Vol. 29, No.3, pp. 429-460.

Graham, Olivia, 1988: "Enclosure of the East African Rangelands; Recent Trends and their Impact" *ODI pastoral Development Network Paper* 25a, London, March 1988

Grandin, B., 1983: "The importance of wealth effects on pastoral production" in: *Pastoral Systems Research in Sub-Saharan Africa*, ILCA, Addis Abeba.

Grannovetter,M., 1992:"Economic Action and Social Structure: The Problem of Embeddedness" in Grannovetter, M. and R. Swedberg: *The Sociology of Economic Life*. Boulder. Pp.53-81.

Grenier, Ph., 1960: "Les Peuls du Ferlo", *Les Cahiers d'Outre-Mer* no. 49, t. 13. pp 28-58.

Grenier, Ph., 1987: " Les Problèmes énergétiques du Ferlo (Sahel sénégalais) in "Energie et espace au Sénégal", *Travaux et documents de géographie tropicale* no. 60. Pp. 63-162.

Gormaire, 1957: "Elements de Politique sylvo-pastorale au Sahel du Sénégal", Fascicule 1-17.

Groot, W.T.de, J.C.J. van Wetten and C.A. Drijver, 1995: "Drawing the Boundary: An Explorative Model of the Defense of the Coomons" in: Van der Breemer et al.(eds.)*: Local Resource Management in Africa*, John Wiley and Sons, Chichester. Pp. 211-229.

Gueye, Babacar, 1994: "Historique de la Décentralisation au Sénégal: les deux premières phases" in: La décentralisation au Sénégal : l'Etape de la Regionalisation, Actes du Séminaire de 2 au 4Mai 1994: Mise en place de la régionalisation au Sénégal". Dakar. Pp.41-47.

Gueye, Mamadou Bara, 1994:"Conflicts and Alliances between Farmers and Herders: A Case Study of the "Goll" of Fandène Village, Senegal" *IIED Issues Paper* no.49. International Institute for Environment and Development, Dryland Networks Programme. London

Guyon, G., 1989: "Faut-il se préoccuper des questions foncières? Jusqu'ou et comment?; Les enseignements du developpement rural en Afrique de l'Ouest". Note de reflection, Caisse Centrale de Coopération Economique, Paris.

Hanan, N.P. Prevost, Y, Diouf, A and Diallo O, 1991: "Assessment of Desertification around Deep Wells in the Sahel using Satellite Imagery" in *Journal of Applied Ecology* 28, 173-186.

Hansen, Tina og Kurt Skårup Kristensen, 1991:"Pastoralister, Bistand og Bæredygtig Udvikling. Speciale, Institut for Geografi og Internationale Udviklingsstudier, RUC. 157 p.

Hardin, Garett, 1968: " The Tragedy of the Commons", *Science* 162:1243-1248.

Hardin, Garett, 1977: "Living in a lifeboat", *BioScience* vol. 24 no. 10. P. 561-568.

Hardy Golan, Elise, 1990: "Land Tenure Reform in Senegal: An Economic study of the Peanut Basin", Land Tenure Center, University of Wisconsin-Madison.

Helland, J., 1982: Social organization and water control among the Borana" *Development and Change* 13(2) 239-258.

Hellden, Ulf, 1984: "Drought Impact monitoring. A study of desertification in North Kordofan, The Sudan, *Rapporter och notitser,* nr. 61, Department of Physical Geography, University of Lund, Sweden.

Hellden, Ulf, 1988: "Desertification Monitoring: Is the Desert Encroaching?", *Desertification Control Bulletin* no. 17. p. 8-12.

Henriksen, G., 1974: *Problems of Development in Turkana.* Skriftserie no. 11, Occasional Paper, Socialantropologisk Institut, Bergen. 77p.

Herskovits, Melville J., 1926: "The cattle complex in East Africa". *American Anthropologist* 28 pp. 230-272, 361-380, 494-568, 633-664.

Hesseling G.,and Matthieu, P., 1986: "Stratégies de l'Etat et des populations par rapport à l'espace." in: Crousse,B. Le Bris et Le Roy (eds): *Espaces diputes en Afrique Noire*. Paris.

Hesseling, G., 1985: "La reforme foncière au Sénégal : Consensus entre paysans et pouvoirs publics?" in van

Bingsbergen, W. Reyntjens, F, and Hesseling, G. (eds.) *State and Local Community in Africa.* Bruxelles.

Hill. Polly, 1986: *Development Economics on Trial; The Antropological Case for Prosecution.* Cambridge University Press.198 p.

Hjort A. and Mohamed Salih, M.A.(eds), 1989: *Ecology and Politics: Environmental Stress and Security in Africa.* Scandinavian Institute of African Studies, Uppsala, Sweden.

Hjort af Örnäs, G.Dahl, 1991: *Responsible Man; the Atmaan Beja of Northeastern Sudan.* Uppsala. pp.1-13.

Hobsbawm E. and T. Ranger, 1983: *The invention of tradition*, Cambridge University Press.

Hogg, Richard, 1986: "The New Pastoralism: Poverty and Dependency in Northern Kenya" *Africa* 56 (3) p.319-333.

Holling, C.S., 1973: "Resilience and Stability of Ecological Systems". *Annual Review of Ecology and Systematics*, Vol. 4:1-23.

Homewood, Katherine, 1995: "Development, demarcation and ecological outcomes in Masailand", *Africa* vol. 65. no.3.

Hussein, Karim, 1998: Conflicts between Farmers Na Herders in the semi-aid Sahel and East Africa: A Review. *Pastoral Land Tenure Series* no.10, Overseas Development Group, School of Development Studies, University of East Anglia, IIED, London.

Haan, Cees de, 1990: " Changing trends in the World Bank 's lending program for rangeland development" in: "Low input sustainable yield systems: Implications for the Worlds rangelands" Proceedings from the 1990 international rangeland development symposium Nevada, USA.

Haan, Cees de, 1994? "An overview of the World Banks involvment in Pastoral development". Mimeo, Draft.

Ingold Tim, 1986: *The Appropriation of Nature; Essays on Human Ecology and Social Relations*, Manchester University Press. 287 p.

International Fund for Agricultural Development (IFAD) 1995: *Common Property Resources and the Rual Poor in Sub Saharan Africa.* Special Programme for Sub-Saharan Countroes affected by Drought and Desertification. NewYork/Amsterdam. pp. 1-48

ISRA 1992: Groupe de Travail sur l'autosuffisance en moutons de Tabaski au Senegal, Mars 1992, Dakar.

Jacobs, Allan H., 1980: "Pastoral Masai and Tropical Rural Development" in Bates, R.H. and M.F. Lofchies: *Agricultural Development in Africa : Issues of Public Policy.* New York, Praeger.

Jamin, P.Y. et J.F. Tourrand, 1986: "Evolution de l'agriculture et de l'elevage dans une zone de grands amenagements: le delta du fleuve Sénégal", *Les Cahiers de Recherche Developpement* , no. 12

Jamin, P.Y., 1986: "La double culture du riz dans la vallée du fleuve Sénégal: Mythe ou réalité?", *Les Cahiers de Recherche Developpement* , no. 12

Juul, K., 1996: "Post-drought migration and technological innovation among Fulani Herders in Senegal: the triumph of the tube!". *IIED Issues Paper* no. 64, juli 1996.25p.

Juul, K., 1994:"Opportunistiske Græsningsstrategier i det Nordlige Senegal". *Den Ny Verden* no.2. Vol.27:38-49. Copenhagen, Denmark. Center for Development Research. Pp. 38-50.

Juul, K. 1994: "Arealanvendelse og forvaltning af naturressourcr blandt hyrder og bønder i det nordlige Senegal" *Kulturgeografiske Hæfter* no 45, 14 årg. pp.8-10, 36-40.

Juul, K 1993a: "Pastoral Tenure Problems and Local Resource Management, The Case of Northern Senegal", *Nomadic Peoples*, no. 32:81-91.

Juul, Kristine, 1993b: "Spontaneous Privatization of Rangelands as a Means of Pastoral Self-Defense; The case of Northern Senegal" in Markussen: "Institutional Issues in Natural Resource Management" *Occasional Paper* no. 9 Institute for Development Studies, Roskilde University .pp. 167-181.

Juul, K.1991a: "Animal Counting in the Northern Senegal (Ferlo) -a comment in the reliability of quantitative livestock data." in Poulsen and Laweson: *Dryland degradation; Causes and Consequences;* Proceedings from Danish Sahel Workshop 1990, 7 p.

Juul, K. 1991b: "Commentaires a la cartographie du forage de Velingara, Mai 1990". Unpublished paper, Centre de Suivi Ecologique, Dakar.

Juul, K., 1991c: "Problèmes Fonciers et aménagement territorial en zone agro-pastorale: Le cas de l'Arrondissement de Barkedji. Mimeo. Centre de Suivi Ecologique, Dakar. 21 p.

Juul, K. 1990a: "Notes sur le Preenquêtesur les stratégies des producteurs" Unpublished, CSE, Dakar, Senegal.

Juul, K. 1990b: "Pastoral Tenure Systems in Senegal - A discussion of Pastoral Management and Exclusion Rights", Documents du CSE, Dakar.

Juul, K., D. N'Decky et O. Touré, 1989: " Comptage de bétail dans 14 forages du Nord Ferlo. Avril 1989". Publication du Centre de Suivi Ecologique, Dakar. 15 p.

Kabeer, Naila and Subrahmania, Ramya, 1996:" Institutions, Relations and Outcomes: Frameworks and Tools for Gender-Aware Planning". *IDS Discussion Paper* 357, Sussex.

Kasberger-Sanftl, G.,Richter, M. et Tluczykont, S., 1991: Le pâturage controlé: Un système d'exploitation sylvo-pastorale comme modèle pour la sauvegarde des ressources naturelles". Mission Forestière Allemande, Saint Louis, Senegal.

Khazanov, 1984: *Nomads and the Outside World.* Cambridge, Cambridge University Press.

Klute, Georg, 1996:"Introduction" in Nomads and the State, *Nomadic Peoples* no.38, pp. 3-11.

Kopytoff, Igor, 1987: "The Internal African Frontier", in Kopytoff (ed) *The African Frontier; The reproduction of Traditional African Societies.* Bloomington.pp.3-84.

Lamprey , H.F. 1988: "Report on the Desert Encroachment Reconnaissance in Northern Sudan 21 October to 10 November 1975", *Desertification Control Bulletin* no. 17 p. 1-7.

Lamprey , H.F: 1983: " Pastoralism yesterday and today: The overgrazing problem" in Bourliere F.(ed) *Tropical Savannas. Ecosystems of the World* vol 13. Amsterdam

*Landais, E. and Philippe L'Hoste: "Association agriculture-élevage en Afrique intertropicale: un mythe confronté aux realités du terrain" *Cahiers de Sciences Humaines* 26 (1-2) p. 217-235.

Lane C., 1994: "Introduction" in "Pastoral Tenure Overviews" Draft Manuscript submitted to UNRISD.

Lane, C., 1993: "Past practices , present problems, Future Possibilities: Indigenous Natural Resource Management in Pastoral Areas of Tanzania" in Markussen: "Institutional Issues in Natural Resource Management " *Occasional Paper* no. 9 Institute for Development Studies, Roskilde University .

Lane, C.,1990: "Barabaig Natural Resource Management: Sustainable Land Use under Threat of Destruction" Geneva: *UNRISD Paper* no.12

Lawry, S. 1989: *"Tenure Policy Towards Common Property Resource Management in Sub-Saharan Africa"*, Land Tenure Center, University of Wisconsin-Madison.

Lawry, Steven W., 1990: *Tenure towards Common Property Natural Resources in Sub-Saharan Africa.* Land Tenure Center, Univeristy of Wisconsin.

Le Roy, Etienne, 1980: Le sous-préfet, le President de la Communauté Rurale et les paysans; Limitations de la compétences judiciaires et adaptations du contentieux adminsistratif dans le règlement des conflits fonciers au Sénégal" in: *Fonction de Juger et Pouvoir Judiciaire, Tranformations et Déplacements.* Publication des Facultés Universitaires, Saint Louis et Bruxelles.

Le Houérou, H.N. 1977: The nature and Causes of Desertization" in: Glantz, Michael H. (ed). *Desertification; Environmental Degradation in and around Arid Lands.* Boulder, Colorado.

Le Roy,E. Karsenty and Bertrand, 1996: *La Sécurisation foncière en Afrique* , Editions Kartahala, Paris.

Leach, M., 1991: "Engendered Environments: Understanding Natural Resource Management in the West African Forest Zone". *IDS Bulletin* vol 22 no. 4.pp. 1-4.

Leach, M. Mearns, R and Scoones, I., 1997: "Environmental Entitlements; a Framework for Understanding the Institutional Dynamics of Environmental Change" *IDS Discussion Paper* 359, Sussex. 39p.

Leach, M and Mearns, R. 1996: " Environmental Change and policy; Challenging recieved Wisdom in Africa" in Leach, M. and Mearns, R.: *The Lie of the Land; Challenging received wisdoms on the African Environment* , Oxford (p1-34).

Lericollais, André, 1989: "Risques anciens, risques nouveaux en agriculture paysanne dans la Vallée du Sénégal", in Eldin, M. et P. Milleville: *Le risque en l'agriculture.* Editions ORSTOM, Paris.419-437.

Lhoste, P., 1984: *Enquêtes en milieu pastoral au Sine-Saloum au Sénégal,* GERDAT, Montpellier.

Lhoste, Ph. et P. Milleville, 1986: "La conduite des animaux; techniques et pratiques". in Landais (ed.): Actes de l'Atelier Méthodes pour la recherche sur les systèmes d'élevage en Afrique Intertropicale. ISRA/IEMVT. Mbour, Senegal

Li, Tania Murray, 1996: "Images of community: Discourse and Strategy in Property Relations" *Development and Change* vol 27, pp 501-527.

Little, Peter D. 1985: "Social differentiation and pastoralist sedentarisation in Northern Kenya", *Africa* 55 (3) p.243-261.

Little, Peter D., 1987: "Land Use Conflicts in the Agricultural/Pastoral Borderlands: The Case of Kenya" in: Little, P.D., M.M. Horowitz and A.E. Nyerges (eds): *Lands at Risk in the Third World.* Westview, Boulder.

Livingstone, Ian, 1977: "Economic Irrationality Among Pastoral Peoples: Myth or Reality? *Development and Change* no.8 (1977) p. 209-230.

Long, N. and van der Ploeg, J.D., 1989: "Demythologizing Planned Intervention: An Actors Perspective" *Sociologia Ruralis*, vol XXIX, 3-4 pp.226-249.

Lund, Christian, 1995: *"Land, Power and Politics in Niger; land struggles and Rural Code"*. PH.D.dissertation, International Development Studies Roskilde. 259 p.

Lund, Christian, 1994a: "Law Power and Politics and the Rural Code in Niger". *Project Paper* 12, International Development Studies Roskilde. 80 p.

Lund, Christian 1994b: "The rural code in Niger: A social process of formation and transformation. Preliminary fragments of an analytical framework". Unpublished draft, Institute for Development Research; University of Roskilde.

Lund, Christian, 1994c: "Tinkering Methodology" in Lund (ed): Access, Control and Management of Natural Resources in Sub-Saharan Africa- methodological considerations." *Occasional Paper* 13, International Development Studies Roskilde.pp.11-23

Mac Manus, Patrick, 1995:'Dagen og vejen - om nogle livsstrategier i fattige samfund' *Den Ny Verden* no.2. Pp. 119-133.

Markakis, J., 1993: "Introduction" in: Markakis, J (ed.) *Conflict and the Decline of Pastoralism in the Horn of Africa*. Macmillan Press, London.

Mc Cay and Acheson (eds.), 1987: *The question of the Commons, the culture and Ecology of communal Resources.*" Tucson .

Mathieu, P. Niasse M. et Vincke, P., 1986 : "Aménagements Hydro-agricoles, concurrence pour l'espace et pratiques foncières locales dans la Vallée du Fleuve Sénégal, le cas de la zone du lac de Guiers" in: Crousse,B. Le Bris et Le Roy (eds): *Espaces disputés en Afrique Noire.* Paris.

Mathieu, P. 1996:"Pratiques informelles, gestion de la confusion et invention du foncier en Afrique." in Villers (ed) *Phénomènes informels et dynamiques culturelles en Afrique*" Editions l'Harmattan ,pp. 64-89.

Mearns, Robin, 1995: Community, Collective Action and Common Grazing, the Case of Post- Socialist Mongolia: Paper presented at the Common property Conference: Reinventing the Commons, Bodø. 1995.

Miehe,S., 1990: "Inventaire et suivi de la végétation dans les parcelles pastorales à Widou Thengoly: Résultats des recherches effectués de 1988 à 1990 et évaluation globale provisoire de l'essai de pâturages controllé après une periode de 10 ans. Unpublished report, Projet GTZ Exploitation agro-sylvo-pastorale des sols dans le Nord du Sénégal. St. Louis. 108 p.

Milleville, P., 1989: "Activités agro-pastorales et aléa climatique en region sahélienne" in Eldin, M. et P. Milleville: *Le risque en agriculture.* Paris, Editions ORSTOM. Pp. 233-243.

Moore, Sally Falk, 1994:"The ethnography of the Present and the Analysis of the Process, from: Brorofsky, Robert (ed): *Assessing Cultural Anthropology.* New York .pp. 362-375.

Moore Sally Falk, 1987a: Explaining the Present : Theoretical Dilemmas in Proccesual Ethnography" American Ethnological Society Distinguished Lecture, San Antonio, Texas,in *American Ethnologist 1987* pp.727-736.

Moore, Sally Falk, 1987b: "Law and Social Change: The Semi-Autonomous Social Field as an Appropriate Subject of Study" in Moore, S.F. *Law as Process; an Anthropological Approach.* Routledge and Kegan Paul, London, Henley and Boston. pp.54-81.
Moore Sally Falk, 1986: *Social Facts and Fabrications, Customary Law on Kilimanjaro 1880-1980.* Cambridge University Press, pp.1-13, 320-329.

Moorehead, R. and Lane, C., 1993: "Nouvelles orientations en matière de politique et de tenure foncière des ressources naturelles en terres de parcours" in: Rapport de l'Atelier Sous-Regional sur Le Foncier Pastoral et le Developpement au Sahel, Nouakchott 30oct. 4 nov. 1993. Annex I and II,IIED, London.

Moorehead, Richard, M., 1991:"Structural chaos: community and state management of common property in Mali", Ph.D. thesis International Development Studies, University of Sussex. 420 p.

Moris, Jon 1988:" Failing to Cope with Drought: the Plight of Africa's ex-pastoralists". *Development Policy Review* Vol. 6. SAGE, London.269-294

Mortimore, M., 1995: "Population growth, agricultural expansion and natural resource degradation, an oversimplified causality?", Paper presented at the 1995 Sahel workshop, Sønderborg, Denmark.

Morton, James 1994; "The Poverty of Nations; The aid Dilemma at the Heart of Africa"British Academy Press, London, New York.

Müller, J.O.,1988: "The land Laws and Community Reform as an Example of Institutional Change in Senegal; Legal Principles, Implementation and Preliminary Results from the Semi-Arid Land in the Ferlo" *Quarterly Journal of International Agriculture*, vol.27, no.1. pp.80-101.

Müller, J.O., 1989:"Risiken der Sedentarisierung und Tranzhumanz-Verhalten "après-forage" von der Peul Nomaden im Koya (Nord-Senegal) Vortrag anlässlich des Symposiums "Tierhaltung im Sahel" Tropenzentrum Universität Göttingen 26-27 Oktober 1989. 12 p.

Ndiaye, Ousmane, 1993: "Micro-level small ruminant transaction analysis and livestock policy in Senegal". Plan B paper for M.Sc. Michigan State University.

Ndione, Cheick Mbacke.1994. "Impact de la dévaluation sur les filières animales du Sénégal". ISRA. Saint Louis. (mimeo)

Nelson, Ridley: "Dryland Management- The desertification problem". *Environment Department Working Paper* 8. World Bank,Washington.

Niamir, Maryam 1990: "Herders decision-making in natural resource management in arid and semi-arid Africa" *Community Forestry Note* 4, FAO, Rome.

Niamir, M 1989:" Local Knowledge and Systems for Natural Resource Management in Arid and Semi-arid Africa. FAO, Rome.

Niane, I.C. 1990: "Note sur la situation des affectations foncières (1988-90) et les litiges foncières intra et intercommunautaires (Département de Matam, Podor et Bakel)" PNUD/Cellule Après-Barrage,Dakar.

Niane, I.C. 198?: "Du fonctionnement des conseils ruraux et des centres d'expansion rurales polyvalents de a Vallée du Fleuve Sénégal" Projet SEN/86.001.

Niang, Mamadou 1979: "Regimes des terres et strategies de developpement rural au Senegal (un exemple de la resistance du droit coutumier africain)" *African Perspectives* vol 1. No. 45-51.. Leiden , pp..45-51.

Niemeijer, David, 1996: "The Dynamics of African Agricultural History: Is it Time for a New Development Paradigm?" *Development and Change* Vol 27, 87-110.

North, D.C., 1990: *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press.

Oakerson, 1992: Analyzing the Commons: A Framework" in Bromely (ed) *Making theCommons Work.* Institute for Comparative Studies, San Fransisco, CAlifornia,

Okoth-Ogendo, H.W.O., 1989:"Some Issues of Theory in the Study of Tenure Relations in African Agriculture" *Africa* vol 59, no.1. pp.6-18.

Olivier de Sardan, J.-P., 1991: *Anthropologie et Developpement*, Editions Khartala, Paris.

Oloko-Onyango, J. et al., 1993: "Pastoralism, Crisis and Transformation in Karamoja". *IIED Issues Paper No. 43.* London

Olsson, Katarina, 1984: "Long term Changes in the Woody vegetation in N.Kordofan, The Sudan- Study with the emphasis on Acacia Senegal". Lunds Universitets Naturgeografiska Institution in cooperation with the Institute of

Environmental Studies, University of Khartoum.

Ortner, S. B.,1986: "Theory in Anthropology since the Sixties" *Comparative Studies in Society and History*, vol.28 no.2. London pp. 126-166.

Ostrom and Keohane 1994: Introduction in Local Commons and Global Interdependence: Heterogeneity and Cooperation in two Domains. *Journal of Theoretical Politics*, vol 6. No. 4.

Ostrom, E., 1992: The Rudiments of a Theory of the Origins, Survival and Performance of Common Property Institutions" In Bromley (ed) 1972: *Making the Commons Work, Theory, Practice and Policy.*

Ostrom. E., 1990: *Governing the Commons: The evolution of institutions for collective action.* Cambridge University Press, Cambridge.

Ostrom, Ellinor, 1988: Institutional arrangements and the dilemma of the commons" in Ostrom,V. Feeny,D. And Pitch (eds) *Rethinking Institutional analysis and development:Issues Alternatives and Choices*. San Fransisco (101-139)

Ostrom, Ellinor 1987: Institutional Arrangements for Resolving the Commons Dilemma, some Contending Approaches" in Mc Cay and Acheson (eds): *The question of the Commons*" Tucson, Arizona.

Painter, T,M, 1994:"Situating user based Governance: Peoples livelihood strategies and natural resource management in West Africa. in Marcussen, H.S.: Improved Natural Resource Management. The role of the State versus that of the Loacl Community. *Occasional Paper* no.12, IDS, Roskilde.

Panzacchi, Cornelia,1994:'The Livelihood of Traditional Griots in Modern Senegal' *Africa* 64 (2).

Pedersen, Jon, 1995: "Drought, Migration and Population Growth in the Sahel: The Case of the Malian Gourma: 1900-1991". *Population Studies*, vol 49 p. 111-126.

Peet, R and M. Watts, 1996:"Liberation Ecologies, Development, Sustainability and environment in an age of market triumphalism" in Peet, R and Watts (eds.): *Liberation Ecologies; Environment, Development, Social Movements*. London p. 1-46.

Pellisier, Paul, 1966: *Les Paysans du Sénégal, les civilisations agrarires du Cayor a la Casamance*, Saint Yrieix, France.

Perrier, G. 1995: "New Directions in Range Management Planning in Africa", in Scoones: *Living With Uncertainty; New Diractions in Pastoral Development in Africa.* Intermediate Technology Publications, London

Peters, Pauline 1994: *Dividing the Commons; Politics, Policy and Culture in Botswana.* University Press of Virginia.277 p.

Peters, Pauline, 1992: "Manoeuvres and Debates in the interpretation of land rights in Botswana" in *Africa*, vol 62, no.3 pp. 413-434.

Peters, Pauline, 1987: "Embedded Systems and Rooted Models; The Grazing Lands of Botswana and the Commons Debate" in Mc Cay and Acheson (eds) 1987: *The question of the Commons, the culture and Ecology of communal Resources*. Tucson, pp. 171-194.

Peters, Pauline, 1984: " Struggles over Water ,Struggles over Meaning: Cattle, Water and the State in Botswana" *Africa* vol. 54, no.3. pp. 29-49.

Picardi, A.C and Siefert, W.W., 1976: "A Tragedy of the Commons in the Sahel". *Technical Review*, May 1976 p. 42-51.

Pouillon, F., 1990: "Sur la "stagnation technique" chez les pasteurs nomades: Les Peul de Nord-Senegal entre l'economie politique et l'histoire contemporaine". *Cahiers des Sciences humaines* 26 (1-2).

Prévost Y., 1990: "Analyse spatiale de la pression animale comme facteur de desertification dans le Nord du Senegal". Publication CSE, Dakar

Profil de l'Environnement de la Vallée du fleuve Sénégal" 1990, "Euroconsult" and "Institut National de Recherche pour la Conservation de la Nature". Document préparé à la demande de la Direction Générale de la Coopération au Dévéloppement (DGIS). Ministère des Affaires Etrangères, Pays-Bas.

Republique du Sénégal, Ministère de l'Economie, des Finances et du Plan, Direction de la Prévision et de la Statistique, 1988: *Répertoire des Villages*. Saints Louis, Louga.

Reyna, S.P. and Downs R.E.,1988: "Introduction", in Downs and Reyna (eds.): *Land and society in contemporary Africa*, University Press of New England.

Ribot, Jesse 1995: "From Exclusion to Participation: Turning Senegals Forestry Policy Around?" *World Development*, Vol. 32, no.9, 1587-1599.

Richter,M.,1991: "Les Peul dans la zone du projet" and other articles in Kasberger-Sanftl, G.,Richter, M. et Tluczykont, S. 1991: Le pâturage controlé: Un système d'exploitation sylvo-pastorale comme modèle pour la sauvegarde des ressources naturelles". Saint Louis, Senegal. Mission Forestière Allemande,GTZ.

Riesman, Paul, 1974: *Freedom in Fulani Social Life; an introspective Ethnography*. University of Chicago Press. Pp.52-116,195-226.

Riesman, Paul, 1990: "The formation of Personality in Fulani Ethnopsychology", in Jackson, Michael and Ivan Karp: *Personhood and Agency:The experiance of Self and Other in African Cultures*, Uppsala.

Roe, Emery 1993; "New Framworks for an Old Tragedy of the Commons and an Aging Common Property Resource Management" *Agriculture and Human Values*, Vol.11 no.1 pp. 29-36.

Roe, Emery M, 1991:"Development Narratives, or Making the best of Blueprint Development" *World Development* Vol. 19 no. 4. pp 287-300. Great Britain.

Rondinelli, D. And Minis, H.P., 1990: Administrative restructuring for economic adjustment; decentralisation policy in Senegal. International Journal of Administrative Sciences, SAGE, London. vol. 56 Pp. 447-466.

Roseberry, W.,1989: *Anthropologies and Histories, Essays in Culture Histories and Political Economy*. Rutgers University Press, New Brunswick (Introduction p.1-14)

Runge, C.F., 1981 "Common Property Externalities: Isolation, the Assurance and Resource Deplation in a traditional Grazing context. *American Journal of Agricultural Economics* vol 63 p. 595-606.

Runge, C.F., 1986: "Common Property and Collective Action in Economic Development" *World Development* vol 14, no. 25. Pp.623-635.

Salih, M.1990: "Pastoralism and the State in Africa" *Nomadic Peoples* 25-27 Uppsala.

Salzman, P.C., 1995: "Studying Nomads: an autobiographical reflection" *Nomadic Peoples* no.36/37 pp. 157-167.

Sandford, S., 1983: *Management of Pastoral Development in the Third World*, London.

Sandford, Steven, 1982: "Pastoral Strategies and Desertification: Opportunism and Conservationism in Dry Lands" in Spooner and Mann (eds): *Desertification and Development; Dryland Ecology in Social Perspective*. London.

Santoir, C., 1994: "Décadence et résistance du pastoralisme. Les Peuls de la Vallée de fleuve Sénégal": *Cahiers d'Etudes africaines* 133-135; XXXIV-1-3 pp.231-263.

Santoir, C. 1993: " D'une rive a l'autre; Les Peul mauritaniens refugiés au Sénégal (départements de Dagana et de Podor" *Cahiers des Sciences Humaines* 29 (1) pp.195-229.

Santoir, C., 1990a: Le Conflit Mauritano-sénégalais: la genèse; Le cas des Peul de la Haute Vallée du Sénégal" *Cahiers des Sciences Humaines* 26 (4) pp.553-576.

Santoir, C., 1990b: " Les Peuls 'refusés'; Les Peul mauritaniens refugiés au Sénégal" *Cahiers des Sciences Humaines* 26 (4) pp.577-603.

Santoir, C., 1983: *Raison Pastorale et Developpement. Les societes peuls face au amenagments*. Dakar, Travaux et Documents de l'ORSTOM no.166. 185.

Santoir, C. 1982: "Contribution à l'etude de l'exploitation du cheptel. Region du Ferlo-Sénégal". Dakar, ORSTOM, multigr

Santoir, C. 1979: "Peuls et aménagements hydro-agricoles dans la Vallée du fleuve Sénégal". Dakar, ORSTOM, multigr.

Santoir, C., 1977: "L'Espace Pastoral dans la Region du Fleuve Senegal", ORSTOM, Dakar.

Sayer, A.1984: *Method in Social Science; A Realist Approach*, London and New York. 313 p.

Schmitz, Jean, 1993: "Anthropologie des conflits fonciers et hydropolitiques du fleuve Sénégal (1975-91)" *Cahiers des Sciences Humaines* Vol. 29, no. 4, pp. 591-623..

Schmitz, Jean, 1987:"Projet de la cuvette de Kaskas, fin de l'étude de la cuvette de Moutoul. SAED, ADRAO, Université de Wageningen et ORSTOM (Miméo).

Schmitz, Jean, 1986a:"Projet d'irrigation de Kaskas et situation des périmètres villageois de la zone".SAED, ADRAO, Université de Wageningen et ORSTOM.

Schmitz, Jean, 1986b:"Agriculture de décrue, unités territoriales et irrigation dans la Vallée du Sénégal" Communication présentée au seminaire " Aménagements Hydro-agricoles et systèmes de production, DSA-CIRAD Montpellier dec. 1986. *Les Cahiers de recherche developpement* no. 12.

Schneider, Harold, K. 1959: "Pakot resistance to change" in Bascom and Herskovits: *Continuity and change in African Culture*. Chicago. Pp. 144-168.

Scoones, Ian, 1995: "New directions in pastoral development in Africa" in Scoones (ed): *Living with Uncertainty: New directions for Pastoral development in Africa*, London.

Scoones, I., 1994: Living with Uncertainty: New directions for Pastoral development in Africa, Overview Paper from the workshop on New directions in African Range Management and Policy, Woburn, UK, June 1993.

Seck, S.M. 1991: "La Dynamique de l'irrigation dans la vallée du fleuve". In Crousse, B. Mathieu, P. And Seck, S.M. (ed): *La vallée du fleuve Sénégal*. Karthala, Parispp.17-45.

Sepällä, Peka 1996: Negotiated deveopment- A new paradigm for Social Dynamics in Rural Africa" *Nordic Journal of Development Studies* vol.5. no. 2. pp.84-98

Serres, H. 1977 Essai de bilan des politiques hydrauliques pastorales GERDAT-IEMVT, Paris.

Solway, Jaqueline S. 1994:"Drought as a 'Revelatory Crisis'; an Exploration of Shifting Entitlements and Hierachies

in the Kalahari, Botswana." *Development and Change* vol 25 pp. 471-495.

Speirs, Mike and Ole Olsen, 1992:" Indigenous Integrated Farming Systems in the Sahel" *World Bank Technical Paper* no.179. Africa Technical Department series.

Spittler, Gerd 1979: "Peasants and the State in Niger", *Peasant Studies* vol. 8 no.1, pp. 30-47.

Spittler, Gerd 1984: "Introduction; Peasants , the Administration and Rural Development," *Sociologia Ruralis No. 24* pp. 7-9

Spooner, Brian 1993: "Ignoring Turbulence in Planning: Some Lessons, Experience and Principles of Chaos, Hazard and Conflict from the Horn of Africa".in Brimer et al: *Natural Resources and Social Conflicts: Proceedings from the 5th Sahel Workshop,* Sandbjerg.

Spooner, Brian, 1987: "Insiders and outsiders in Baluchistan, Western and Indigenous Perspectives on Ecology and Development" in Little, Horowitz and Nyerges (eds): *Lands at Risk in the Third World*, Westview, Boulder.

Spooner, Brian, 1982: " Rethinking Desertification: the Social Dimension" in Spooner and Mann (eds) *Desertification and Development; Dryland Ecology in Social Perspective.* London.

Solway, Jacqueline, 1994: "Drought as a 'Revelatory Crisis': An Exploration of Shifting Entitlements and Hierarchies in The Kalahar, Botswana" *Development and Change* vol 25, pp. 471-495.

Stebbing , E.P., 1938: "The encroaching Sahara:The threat to the West African Colonies: A paper read at the Evening Meeting of the Society on 4 March 1935". *The Geographical Journal*, The Royal Geographic Society, 1938 vol. 85 p. 506-524)London.

Stroosnijder, L., 1994: "Population density, Carrying Capacity and Agricultural Technology in the Sahel" in: *Proceedings from the 6th Sahel Workshop.* 6-8th January 1994. Aarhus, Denmark.

Sutter, J.W. 1987: "Cattle and Inequality: Herd Size Differentiation and Pastoral Production among the Fulani of Northeastern Senegal." *Africa* 57 (2) pp.196-218.

Swallow,B. 1989: "Strategies and Tenure in African Livestock Development" Draft, Land Tenure Center , University of Wisconsin, Madison, USA, Sept. 1989.

Swift. J.J., 1988:" *Major Issues in Pastoral Development with Special Emphasis on Selected African Countries*". Food and Agriculture Organization (FAO) Rome.

Swift. J.J., 1996: " Desertification; Narratives, Winners and Losers" in Leach and Mearns (eds): *The Lie of the Land; Challenging Received Wisdom on the Agrican Environment.*The International African Institute in association with James Currey, Oxford and Heinemann Portsmouth, N.H.

Thébaud, Brigitte, 1995: "Pastoralisme et degradation du milieu naturel au Sahel: Mythe ou réalité?, l'experience de pâturage controlé à Widou Thiengoli (Ferlo Senegalais) Document présenté dans le cadre du seminaire Sahel, Soenderborg janvier 1995.

Thebaud, Brigitte, 1994a: "Projet "Exploitation agro-sylvo-pastoral des sols dans le Nord du Senegal" (GTZ) : Bilan et identification d'un nouveau projet. Rapport de mission 28 mars au 5 mai 1994.

Thébaud, Brigitte, 1994b: "Projet "Exploitation agro-sylvo-pastoral des sols dans le Nord du Sénégal" (GTZ) : Bilan et identification d'un nouveau projet. Rapport de mission 28 mars au 5 mai 1994.

Thebaud, Brigitte, 1993a: " Le foncier dans le Sahel Pastoral, situation et perspectives". dec. 1993, article in press prepared for the Seminar of EHESS.

Thebaud, Brigitte, 1993b: "Causes et consequences de la désertification en Afrique: essai d'interprétation. Document preparé dans le cadre du Panel International d'Experts sur la Désertification. Genève nov.1993.

Thebaud, Brigitte and Camilla Toulmin, 1993: "Causes et consequences socio-économiques de la désertification en Afrique: la question pastorale". Document preparé dans le cadre du Panel International d'Experts sur la Désertification. Genève nov.1993.

Thebaud, B., 1990:"Politique dHydraulique Pastorale et Gestion de l'Espace au Sahel" in *Cahiers des Sciences Humaines* Vol .1 et 2, ORSTOM, Paris.

Thebaud , B., 1985: *Elevage et développement au Niger - quel avenir pour les éleveurs sahéliens,*BIT, Genève. 147 p.

Thiam, Algor, 1995 :"Le rôle du système d'élevage extensif amélioré dans la production de viande au Sénégal: Contraintes et perspectives" Communication du Seminaire-Atelier sur la production de Viande en Afrique Sub-Saharienne, 13-17 Mars 1995 à Saly Portudal, Sénégal, multigr..

Thomas, D.S.G. and Middleton, N.J. 1994: *Desertification: Exploding the Myth*, Chichester. (194 p.)

Thomson J.T.1989: "Options for Promoting User- Based Governance of Sahelian Renewable Resources (prepared for CILSS) 136p.

Thomson, J.T., 1991:" Sahel Decentralization Policy Report, Volume 1: Decentralization, Governance and Problem Solving in the Sahel". Agency for International Development. (28 p.)

Tiffen, Mary and Michael Mortimore, 1994: "Environment, Population Growth and Productivity in Kenya: a Case Study of Machakos District. *IIED Issues Paper* No. 47.London.

Tiffen, Mary, Michael Mortimore and Francis Gichuki, 1994: *More People, less Erosion; Environmental Recovery in Kenya.* Wiley Publishers, Chichester.

Tluczykont, Siegfried 1991:"Le modèle de pâturage controlé" in Kasberger-Sanftl, G. Richter, M. et Tluczykont, S. 1991: Le pâturage controlé: Un système d'exploitation sylvo-pastorale comme modèle pour la sauvegarde des ressources naturelles". Saint Louis, Senegal. Mission Forestière Allemande,GTZ.

Toulmin, C. 1993: "Combatting Desertification: Setting an Agenda for a Global Convention". Dryland Networks Progamme, *IIED Issues Paper* no. 42. International Institute for Environment and Development, London.

Toulmin, C., 1986: " Access to Food , Dry Season Strategies and Household Size amongst the Bambara of Central Mali" in *IDS Bulletin*, vol 17 no.3.

Toulmin, C., 1991: Natural Resource Management at the Local Level: Will this bring Food Security to the Sahel?" in *IDS Bulletin* 22-3.

Touré, O. 1991a: "Mission d'évaluation du Projet Sénégalo-Allemand d'exploitation agro-sylvo-pastorale des sols dans le nord du Sénégal- Rapport sociologique". Unpublished. Dakar.

Touré, Oussouby 1991b: "Développement pastoral et contraintes foncière dans la zone sahélienne du Sénégal." Publication du Centre de Suivi Ecologique, Unpublished. Dakar.25 p.

Touré, Oussouby 1990a: "Les sociétés peuls du Ferlo: continuité; changements, menaces." Publication du Centre de Suivi Ecologique, Unpublished. Dakar.15 p.

Touré, Oussouby, 1990b: "Where Herders don't herd anymore: Experience from the Ferlo, northern Senegal. Dryland Networks Progamme, *IIED Issues Paper* no. 22. International Institute for Environment and Development, London.

Wade, Robert, 1992: Common Property resource Management in south Indian Villages" In: Bromley (ed) 1972:"
Touré, Oussouby, 1989: "Le Zonage du Ferlo, Analyse des modes d'exploitation des villes et de leur évolution."
Publication du Centre de Suivi Ecologique, Unpublished. Dakar. 44 p.

Touré, Oussouby and J. Arpaillange: *Peul du Ferlo* , L'Harmattan, Paris, 77 p.

Tourrand, J.F., 1993: "L'Elevage dans la révolution agricole au Waalo. Ruptures et continuité". Thèse d'Etat, Université de Paris-XII.

Tourrand, J.F. 1989: "Un pasteur devient agro-pasteur: une étude de cas dans le Delta du fleuve Sénégal": Seminaire RESPAO. Accra, 1989, 13p.

Tyc, Jean, 1994: Etude diagnostic sur l'exploitation et la commercialisation du bétail dans la zone des 'six forages', Rapport de mission, Projet d'exploitation agro-sylvo-pastorale des sols dans le nord du Sénégal (GTZ).80 p.

UNCED 1992: *Convention on Desertification.* New York.

UNSO/PNUD 1994:"La gestion des Ressources Naturelles et les Politiques Pastorales Nationales" Compte Rendu de l'Atelier Sous-régional, Bamako Nov, 1993.

van Dijk, Hans, 1994: 'Livestock Transfers and Social Security in FulBe society in the Hayre, central Mali', *Focaal* no. 22/23 pp. 97-112.

Vedeld, Trond 1994: "The State and Rangeland Management: Creation and Erosion of Pastoral Institutions in Mali" London International Institute for Environment and Development. *IIED Issues Paper* no. 46 .

Vedeld, T., 1992; "Local Institution Building and Resource Management in the West African Sahel" Draft, NORAGRIC, Norway.

Vengroff, R. and A. Johnston, 1985:" Senegals Rural Councils: Decentralization and the Implementation of Rural Development" Mimeo. Center for Applied International Development Studies (CAIDS) Texas Tech University, Report prepared for USAID. 137 p.

Vengroff, R. and A. Johnston 1987:" Decentralization and the Implementation of Rural Development in Senegal: The role of the Rural Councils" *Public Administration and Development* vol 7, pp. 273-288.

Making the Commons Work, Theory, Practice and Policy.

Warren, A and Agnew, C., 1987: *An assessment of Desertification and Land Degradation in arid and semi-arid areas.* Dryland Paper no. 2. IIED. London,

Weicker, Martin, 1993: *Nomades et sedentaires au Sénégal*, ENDA-Editions, série Etudes et Recherches no. 139-140 Dakar, Sénégal.

Wilson, F.,1990: "The Study of Institutions and the Paradoxical Situation of doing Research" in *Occasional Paper* no.1. IDS, Roskilde.

Youmba, Malick Abdoul 1983: Rapport de stage: Hydraulique Pastorale et villageoise" Ecole Inter Etat des Sciences et Medicine Veterinaire, Dakar.

Webb, James, L.A.,1995: *The Desert Frontier; Ecological and Economic Change along the Western Sahel 1600-1850.* University of Wisconsin Press.pp. 3-27.